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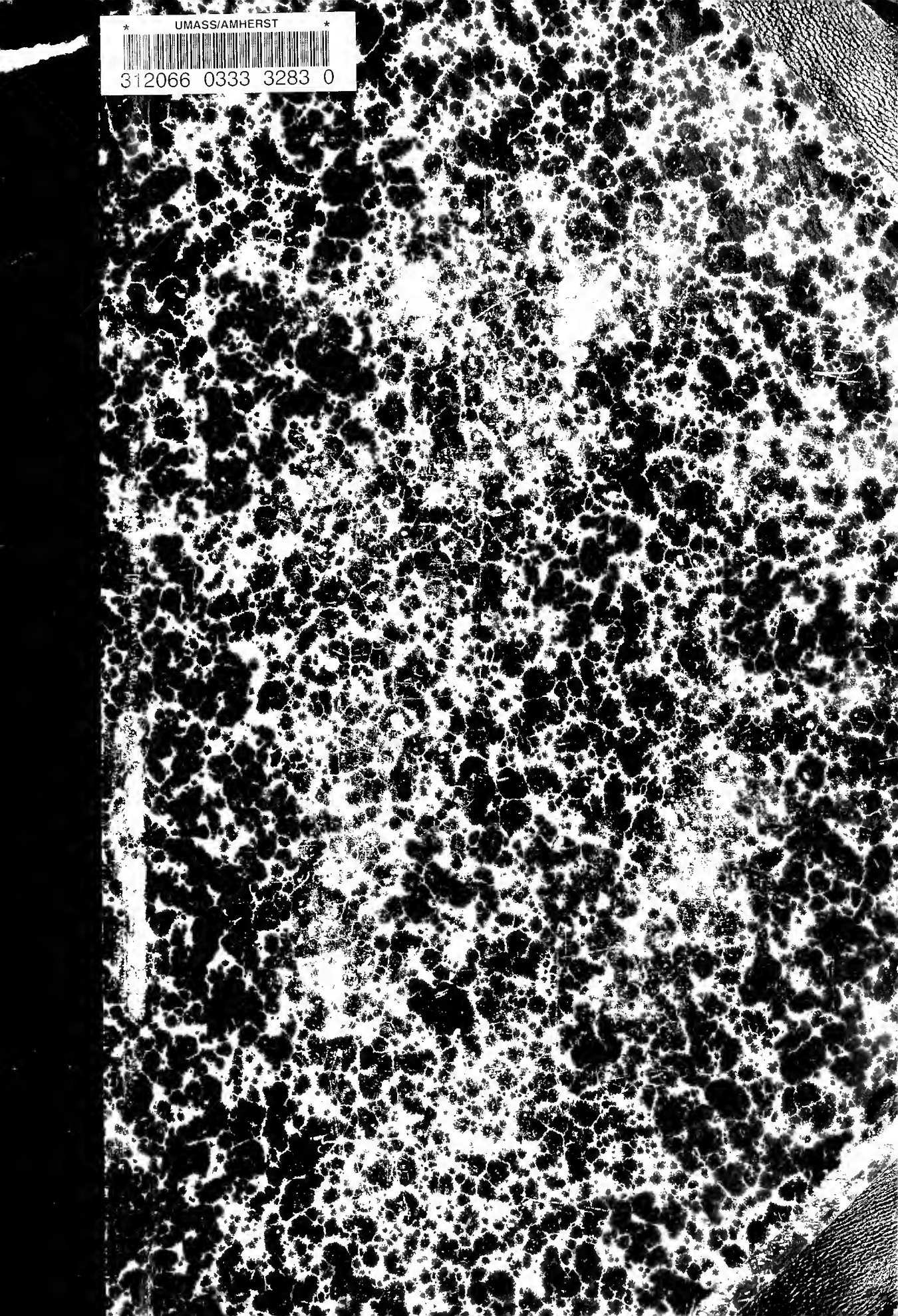

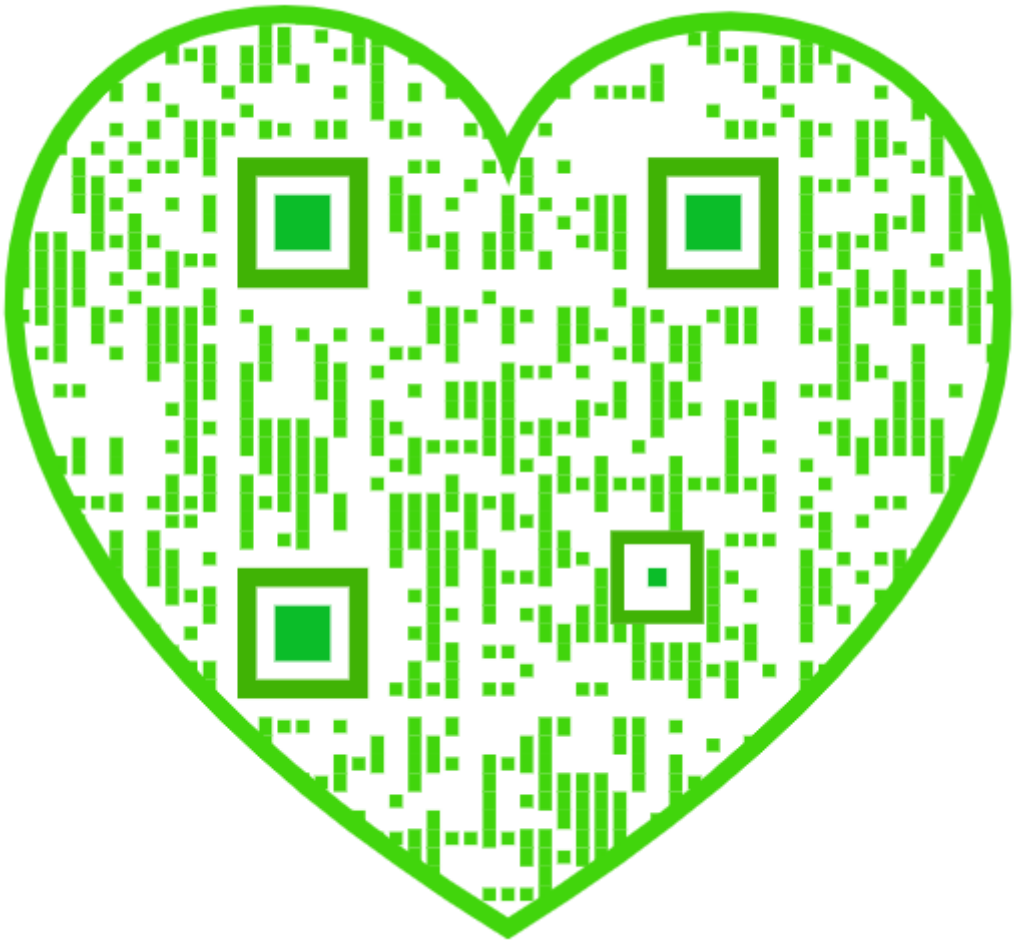

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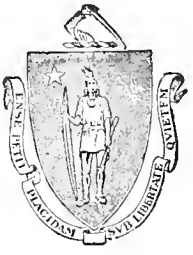

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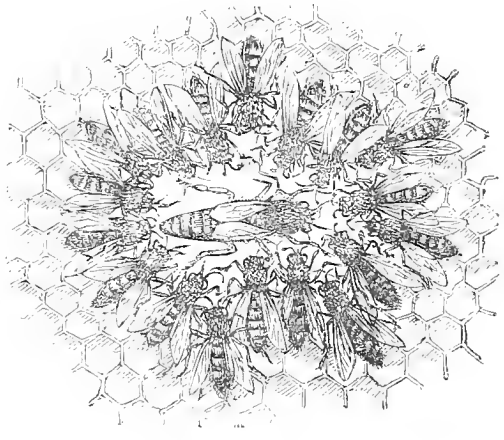

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INDEX.

Abbott, Bros., their cottager-crate, 290
Abbott, J. A., his visit to America and Canada, 6, 47, 51
Accommodation cells, 180
'A. E.' wants a diploma, 548, 572
African bees, 525
After-swarms, 212, 330
Age of bees, 224, 225
Agriculture and apiculture, 561
Alighting-boards, 198
Allan, J. his description of a Stewarton hive, 305
Alley, H., *Bee-keepers' Handy Book*, 154
Allotment garden, managing stock on an, 19, 28, 41
Amateur Expert, crate exhibited by the, 59, 128; jottings by, 23
American 'artificial honey,' 222
American Beekeeper's Magazine, 22, 53, 89
American blight, 439
American cloth, 188, 294
American hives exhibited by Messrs. Abbott, 186
'A more excellent way,' 201
Andren, F., *La Apicultura Mobilista en Espana*, 210
Andrenidæ, 261, 262
Ants, 144; and aphides, 450; and bees in Jamaica, 514
Antennæ of bees, 320
Aphides, the producers of honey-dew, 420; their countless numbers, 439; their migrations, 439; their organism, *ib.*; their enemies, 450; their relations with ants, 450
Aphis, 212, 439; vastatrix, 440
Apiary, position of, 19; clearing up, 452; competition, 489
Apis dorsata, 30
Apiculture and agriculture, 1, 561; lectures on (*see* Lectures); patents relating to, 524
Apifebris, 117
Apifuge, the new, 99, 108, 116, 131, 137, 140, 217, 227, 248, 257, 280, 348, 415, 456; and methyl salicylate, 121; experience with, 163, 200; tests of, 202; uses of, 270
Apifuges, 8, 38
Aplaugh, Mr., his machine for inserting foundation in sections, 469, 472, 474
Argentine bees, 552
Arnold's soap, 415
Artificial combs, 168
Artificial comb-compresser 168
Artificial pollen, 93, 152; supplying bees with, 122
Artificial swarm, 352; how to make, 255
Artificial swarming, 134, 574; antiquity of, 111
Association, a useful, 435
Associations, non-members of, 352; and members' honey, 415
Aspect of hives, 431, 490
Aspinwall and Treadwell, 147, 470
Autumn food, 417; plants, late, 100
Average yield per hive, 113
Avoiding extremes, 353

Bacilli, 354
Bacillus, 354; its tenacity of life, 391; alvei and depilis, 158; Gaytoni, 112, 124, 164, 283, 365; minor, 307, 337, 372, 399
Bacteria, 391
Balsams, their composition, 271
Barbaglia, on the wax found on the leaves of boxus sempervirens, 147
Bare-headed nymphs, 497
Barrowful, a, of honey, 425
Barrels for storing honey, 250
Basswood honey, 510
Be ready, 272
Bee, the song of the, 214; mistake of a, 27, 62
Bee-bobs, 149
Bee-colonies, experiments to ascertain development of, 193
Bee-conciliators, 1, 17, 90
Bee disease, 515, 527
Bee-farm, 64, 542; starting a, 413, 435, 442, 456; *A Modern*, 547
Bee-farming, 512
Bee-fever, 117
Bee flora, 175, 237, 218; alfalfa, 188; azaleas, 205; berberis Darwini, 155; blackberries, 301; borage, 227, 237, 301; buxus arborescens, 175; Canterbury bells, 237; carraway, 155; Chapman honey plant, 98, 209; Clarkia, 228; clover, red; 112, 255; clematis, 554; clover, white, 255; cotoneaster microphylla, 283; crocuses, 184, 227; echinops nitro, 3, 159; echinops sphærocephalus 3, 159, 173, 177, 210, 217; erica carnea, 124; forget-me-not, 237; fuchsia, 504; gantheria, 8; hawthorn, 552; kalmia latifolia, 199; lady slipper, 254; limnauthes, 227, 301, 386; lythrum salicaria, 500; mignonette, 237; nepeta mussini, 227, 240, 301, 386, 485; nepetos purpurea, 271; orchis, 520; poker lilies, 504; poppies, 237; rhododendrons, 205; rue, 228; scrophularia, 184; snowdrops, 227; statice limonium (*see* Lavender), 307, 388; sunflowers, 386, 504; strobilanthes, 381; sycamore, 262; thyme, 228; wall-flowers, 237; wood-sage, 228
Bee-flowers, sowing in waste places, 217
Bee forage, 205
Bee-hives, notes on, 120, 164, 141. *See* Hives
Bee-houses, 144, 205, 237, 165
Bee-keeper, becoming a, 42
Bee-keeper's night-mare, a, 182
Bee-keepers' Associations and Shows:—
Aberdare, 388, 382; Ambleside, 395; Armagh, 357; Banbridge, 347; Belfast, 381; Berks, 5, 48, 96, 171, 289, 331; British, 13, 34, 81, 127, 159, 179, 183, 222, 224, 232, 285, 318, 431, 441, 449, 451, 470, 509, 513; Bucks, 70; Bury St. Edmunds, 203, 232, 246, 289; Caledonian, 334, 347; Cambridgeshire, 346; Cornwall, 47; Craven, 119, 396; Derbyshire, 70; Devon and Exeter, 24; Dungannon, 357; East Lothian, 127; Essex, 70, 535; Faringdon, 346; Forfar, 395; Glamorganshire, 71, 349, 362, 373; Gloucestershire, 104, 331; Hants and Isle of Wight, 1, 49, 119, 225, 332, 333, 409; Hawkshurst, 216; Hereford, 410; Herefordshire, 70; Horsforth, 71, 409; Hants Agricultural, 345; Irish, 104, 119, 159, 216, 255, 298, 355, 493, 547; Kent, 492; Lancashire, 394; Lancashire and Cheshire, 2, 94, 215, 246, 446; Leeds, 204; Leicestershire, 71, 253, 344, 547; Lincolnshire, 1, 321, 535; Lowestoft, 205; Maer (Staffordshire), 359; Manchester Exhibition, 317; Manchester, 394; Middlesex, 61, 95, 127, 145, 330, 384, 432, 514; Monmouthshire, 333; Newcastle-on-Tyne, 179, 309; Newton Abbot, 234; Norfolk and Norwich, 288; Northamptonshire, 355; North-east of Ireland, 191, 381, 424, 436, 483, 495; Norwich Show, 1; Notts, 204, 481; Oxfordshire, 71; Prescot, 322; Reading, 167, 242, 278; Royal Agricultural, 179, 192, 309; Royal Counties' Agricultural, 167, 242, 278; Rutherglen, 481; Saltaire, 38; Shrewsbury Horticultural, 380; Shughborough, 394; Somerset, 368; Southampton, 332; South Kensington, 1; Southgate, 380; Spalding, 192; Staffordshire, 307, 394; Stone, 394; Strabane, 334; Suffolk Agricultural, 246; Surrey, 127; Swanmore, 333; Paunton, 368; Warwickshire, 215, 345; Waterford, 410; Wellington (Somerset), 368; Wilts, 278, 395; Winchcombe and Sudeley, 382; Windsor, 5; Worcestershire, 61, 94, 309; Wrockwardine, 409; York, 276; Yorkshire, 61, 119, 204
Bee-keeping, and teaching, 43; how to commence, 64, 276; making it pay, 101; profitable, 208; revival of, 214; books on, 303; in the Isle of Man, 436; a novice's experience in, 445; in Ireland, 465; as a livelihood, 479; with other pursuits, 485; increasing knowledge in, 519
Bee-loving hen, 268
Beeman's tour, 98
Bee-ology, 235
Bees, flowers for, 3; effect on, of various perfumes, 8; treatment of, 19, 239; supplying with water, 39; working pieces of new comb, 40; on roof of house, 41, 42; where they may be kept, 43; who may keep, *ib.*; singular mode of bringing a nest of, to the ground, 46; voice of, 56; hearing of, *ib.*; their power of talking, 58; brain-weight of, *ib.*; in skep, dead, 64; in confinement, 100; are able to sting, 115; in the suburbs, 112; moving from one side of high fence to another, *ib.*; packing, 122; starved, 123; race of, 123; do they hear? 131, 149, 152; in a loft, 134, 144; fighting after uniting, 134; how to manage and control, 135; human breath offensive to them, *ib.*; different, found in a colony, *ib.*; fighting, 154; birds eating, 161; sundry experiences with, 163; sensitive to atmospheric influences, 164; by the side of a railway, 165; clustering outside, 176; their dwellings, 179; and roses, 183, 283; and flowers, 183; and clover, *ib.*; depredations on fruit, 185; dying, 188, 283, 468; and ripe fruit, 196, 207, 216, 236, 249, 280; and sparrows, 197; can they hear? 197; in boats in the East, 213; eating fruit, 216; and strawberries, 219; no respecter of persons, 219; stung by, *ib.*; birds and, *ib.*; and grapes, 223; unprotected, 226; and noise, 229; diseased, 239; sluggish, 250; their fertilisation of flowers, 254; breed of, 262; fraternisation of, 272; changing queens, 273; management of, for profit, 276; water for, 280, 300; obstructing their queen, 281; protection of, from heat and cold, 287; leaving glass jar, 293; on a tree, 293; tumbling out of hive, 293; attacking chickens, 294; hanging outside, 294; building outside super, 294; on, 305; working in the sections, 311; giving salt to, 344; my pet, 325; driven, 327; attacked by a swarm of, 347; escapade with, 350; getting from the gable end of a house, *ib.*; preparing for the winter, *ib.*; vagaries of, in swarming, 351; attacking fruit, 352; vicious, 350; the, 373; black, 396; a pound of, 395; near house, 395; in a box-hive, 375; in a thunderstorm, 385; and manure-heaps, 411, 444, 477, 487, 505; invading shop, 414; casting out young, 416; refusing to raise queen, 457; and essence of lemon, 457; utilising wax, 447; with white backs, *ib.*; and manure-heaps or drains, 466; breeding, 475; injuring roses, 484; building drone-comb, *ib.*; amount of, for winter, 510; age of, 510; enemies of, 490; dead and dying, 498; what they can do, 505; short of food at beginning of year, 508
Bee-space between bottom bar and floor-board, 89
Bee-sting a useful tool, 75
Bee-stings, quicklime a remedy for, 40; receipt for the cure of, 57
Bee-subjugators, 7
Beeswax, and its conversion into money, 146, 168, 308; its production, *ib.*; its colour, *ib.*; its constituents, *ib.*; cost of its production, *ib.*; on the proportion of honey to, *ib.*; uses of, 282; how made, 481. *See* Wax.
Bee-tent, 143; at Horticultural Show, 101
Bee tour through Lancashire and Northumberland, 248, 269, 279, 293
Bee-way sections, 174
Beginners, caution to, 276
Bell-glass to hold 35 lbs, 133; on bar-frame hive, 219; fastening foundation in, 239; clearing a, 339
Bellows-smoker, how to make, 31
Benzoic acid, 506
Benzoin, 487
Bertrand, M., his fumigator, 250
Bessler, *Lehrbuch der Bienenzucht*, 559; his portraits of bee-keepers, *ib.*
Birds, 370; and bees, 219; eating bees, 161, 173; reptiles, bees, 399
Bitter almonds, essential oil of, 488
Bitter honey, 389
Black bees, 195
Black honey, 492
Blacklead a lubricant, 561
Bleaching honey, 304
Blow, T., among the Carniolan bee-keepers, 9; his invertible hive, 67; his dividers, 125
Blue tits, 4
Bombus lapidarius, 217
Bonnier, G. et Georges de Layens, *Nouvelle Flore*, 302
Borax, 134
Borgne honey, 388
Bottles, small, 337
Box-hives, driving bees from, 349
Box-trees, 184
Boyle, Hon. R., his use of glass hives, 130
Boys and girls, for, 292, 302
Braula cœca, 194, 389, 437, 553
Brazilian bees, 21
Breeding for qualities, 22
Breeding space, 478
Breeding and stimulation, 158
British B.K.A., work for, 101
British bees, 129, 206
British and American inventions, 143
British honey, 167
British Honey Company, 363; suggestions to the, 444
British invertible hive male watertight, 132; keeping rain from, 139
British wild bees, 100
Broad shoulders, 211
Brood, drone and worker, 219
Brood, capped, 220; casting out, 262; addition of, 268; introduction of, into nuclei, 283; rotten, 301; desd, 380, 427
Brood-cell covers, 497, 480
Brood-combs, size of, 180; extracting honey from, 327, 372, 383, 402, 411, 412, 425, 433, 445, 463, 466
Broodless colonies, 437
Brood-nest enlarging, 203, 223
Brood-spreading, 117
Brother Jonathan, 311
Brown paper not suitable for dividers, 198
Brown and Polson's cornflour, 175
Bumping, 330, 342, 415, 423, 426, 435; a success, 400; a failure, 400, 415
Burns, salve for, 309
Burrowing bees, 261, 232
Burying beetle, 273
Butler, Dr., 157, 158, 491
Buzzing and humming, 58

Cages and introduction, 475
Californian honey, 168; in England, 234
Calvert's carbolic acid, 200, 259, 553; soap, 208
Camomile weed, 337
Camphor a cure for foul brood, 14, 15
Canada, 13, 170; bee-keeping in, 6, 73; wintering in, 13, 72; sending honey to England, 170, 282; 'the winter is past,' 216; season in, 515
Canadian bee-feeder, 497, 488; bee-keepers, 1; experiences, 163; hives, 97
Candy, 44, 136, 490; soft, Goolt's, 30, 554; warm, 109; making, 112; recipe for winter, 488; white, 554; Scholz, *ib.*
Cane sugar, 212; in honey, 239
Cappings of brood-cells, 180
Carbolic acid solution, 60, 134, 135, 250, 304, 339, 348, 406, 415, 427; for removing sections, 566
Carbolised cloth, 393, 402, 406
Carbolic fumigation, 220
Carbolic sheet recipe, 417
Carniolan bee-keepers, 9
Carniolan bees, 19, 40, 97,

130, 145, 160, 182, 218, 224, 337; transferring, 42
Carniolans and Ligurians, 144
Carniolan queens, 259
Carr, W. B., his metal ends, 57; his advocacy of the use of small frames, 97; his device for fixing foundation in Lee's frames, 553
Cast on back frames, 293
Casts, 212; feeding, 283
Castor-oil plant, 250
Caucasian bees, 49
Caught in the act, 300, 323, 361
Caution, a, 237; a word of, 242
Cedar oil and olive oil, an apifuge, 109
Cellar wintering, 122
Cells, 180
Central Africa, tribes of, smoke bees, 111
Ceylon folk lore, 523
Chaffinches, 161
Chelifers, 563
Chemists, query for the, 493
Cheshire, F., 394, 494
Chile, exports of honey and wax from, 215, 548, 553
Chilled brood, 239, 273; and diseased, 498
Chimney swallows, 370
Christmas greeting, 553, 554
Chrome alum, 122
Chrysalis, 212
Chyle stomach of the bee, ejection of chyle from, 539
Cinnamon oil, a remedy for bee-stings, 419
Clearing-up, 497
Clover in front of hives, 28, 141
Coffee pernicious to bacteria, 10
Cold cream, 309
Colonies, small, 44, 69; defunct, 45; to be kept strong, *ib.*; equalisation of, 69; examination of, in spring, 92; strong, 254
Colony of B's, a full, 507
Comb-foundation, 200, 238; fixing in skeps for condemned bees, 301; worker and, 512. *See* Foundation
Comb honey, 203; keeping, 554; in sections, 560
Combs, empty, 19; transferring from large frames to standard, 20; built irregularly, *ib.*; broken down in autumn, 112; stored with syrup, utilisation of, 124; structure of, in a hive, 179; old, 199, 239; spare, 210, 218; of previous year, 259; crooked, *ib.*; fixed together, 315; clearing out, 352; working out, *ib.*; position of, 426; preserving through winter, 437; affected with foul brood, 458; age of, 490, 575; best way of obtaining a quantity of, 511
Coming bee, the, 206
Committee-men, 5, 17
Committee, criticised, 193
Conversaziones, 24, 185, 318, 479; scientific subjects at, 56
Condemned bees, 165, 218, 236, 329, 330, 379, 541, 554; treatment of, 147; uniting to frame-hive, 427
Conly's flood, 250
Cook, Prof., his apiary and Work, 471
Co-operative show, 311, 436, 447
Co-operators, amongst the, 378
Corn-dodder, 309
Corneil, Mr., his section-crate and sections, 4, 16; his super, 128; his foundation fixer, 631; his gift of Mr. Aplandh's machine for foundation fixing to the B.B.K.A., 169, 471, 474
Cornell University, apiculture at, 225
Cosmetic specialities, 309
Cosmétique, 309
Cottagers' Apiary Competition, 465, 489
Country life, 92
County Associations, 509; members of, 100; experts, 196, 217; secretaries, their duties, 509
Cowan hive, 112, 144, 327, 566; damp, 210
Cowan, T. W., his *Guide-book*, 2; his *Doubling and Storifying*, *ib.*; on the proportion of honey to wax, 147; his inventions, 327; his visit to America, 439; his reception, *ib.*; presentation to, 450, 451; his narrative of his visit to Canada and the United States, 470, 515
Crates of thirty-five sections, 76, 88
Crates and sections, 151
Crème celeste, 309
Crimea, bee-keeping in, 565
Croaking, 30, 187; queens, 110, 152, 173
Crooked combs, 134, 250, 283
Crowding bees, 339
Crown-boards, 478; *v.* quilts, 22
Cubic contents of one pound of honey, 304
Cumberland, a voice from, 87
Cupid and the bees, 138
Curiosities of bee-life, 148
Curtis, Dr., on the source of honey-dew, 420
Cyprian bees, 3, 98, 105, 120, 128, 129, 181; experience of bee-keepers with, *ib.*; instructions for manipulating them, *ib.*; characteristics of, 136
Cyprian queen, experience with a, 40

Dadants, Messrs., foundation-makers, 471; hives, 563
Dampness, 22
Danish bee-keeping, past and present, 244
Dead brood, 371, 411, 431
Dead larvæ and young bees, 200
Death's head moth, 458, 553
Demaree, G., 159, 286
Denuler, J., *Das Bienenwachs und seine Verfälschung*, 111, 126, 168, 296
De quibusdam, 187, 200
Der Praktische Imker, 527
Desborough, J., on the life of worker-bees, 158
Desideratum, a, 503
Diagrams, Sartori's, 552, 596
Diarrhœa, remedy for, 309
Dines, Mr., his crate, 128
Disclaimer, a., 28
Discouraged one, 86
Diseased brood, 447
Distance-guides, absence of, 388
District associations, 50, 55, 74, 500
Dividing, by a lady, 250, for increase, 501
Division-boards, 158, 211, 510
Dobbie's *Bee Pasturage*, 375
Dokonpil, M., 9
Donhoff, Dr., on proportion of honey to wax, 146
Doubling, 19, 73, 209, 220, 223, 250, 283, 478; and storifying, 114
Driving, 488
Driving bees, 222, 253, 303, 327, 330, 403, 512; partially filled skep, 220; and uniting, 326; time for, 314; by a novice, of bees by candle-light, 413
Drone-breeding, 160
Drone-brood in worker-comb, 210
Drone, young, 144; the lazy, yawning, 301
Drone-comb, 180, 240, 250, 330, 407, 433, 550; when built by the bees, 39; size of, 180; in lower hive, 283, and drone foundation, 574
Drone-cells, 180
Drone-eggs, 339
Drones, 135, 173, 188, 283, 326, 447; having white eyes, 28; selected, 74; why they do not store honey, 77; value of, *ib.*; casting out, 250, 339; about d. 262; white-headed, 315; presence of, 478
Drought, 354, 379
Dry-sugar feeding, 14, 26, 30, 100, 124, 144, 210; and dead larvæ, 273
Dry sugar, 364
Duncan's pearl sugar, 93, 124
Duties on wax and honey in France, 4
Dysentery, 29, 64; in an observatory hive, 29
Dzierzon, Dr., on honey-dew, 419; on brood-covers, 467, 481

Earthen pans for honey, 365
Earwigs, 375, 553
East winds and smoke *v.* carbolic, 268
Eastern races, 453; building comb between frames and quilts, 504
Echoes, *passim*
Economical cushion and feeder, 550
Eggs, queen and worker, identical, 124; several, in one cell, 177, 250
Egyptian babe embalmed in honey, 331
Elizabeth, Queen, her fondness for metheglin, 213
Ellwood, Mr., 471
Embalmed in honey, 171
Embedding foundation, 45
Enamel cloth, 64, 92, 100, 144, 165, 209, 478
Ends of sheet metal, 63
English bees, 160; queens, two, 410
Entrances, 211, 243, 417, 528; distances of, 229; shading, 510
Ericaceæ, 8
Eristalis fossarum, 478
Ersley, H. *Förer i Biavl T. H. Cowan*, 302; on drone-comb, 452
Eucalyptus honey, 139, 155
Evans, Dr., 158; on the cause of honey-dew, 420
Evelyn, Mr., his glass hive, 149
Examination of bees, 44
Examinations, 125, 285
Excluder zinc, 152, 283, 303, 336
Exhibition in France in 1887, bee-section in, 215
Experience, my, 142
Experts, becoming, 64; pay per day, 112; visits of, 172, 182; and foul brood, 181; spring tour of, 218; a word for the, 256; examinations, 348; conduct of, 536
Extracted honey, straining, 123; or section honey? 167; working for, 349
Extracting, 88, 288, 293, 330, 352, 354, 365; and feeding, 293; from brood-combs, 372, 389
Extractor, how to make, 11; size of, 77; distance of baskets from spindle, in, 153; for heather honey, 177; conveying foul brood, 508
Eyes of bees, 318

Facts, 567
Fastening combs in skeps, 415
Fecundation, in confinement, 431; late, 451
Feed your stocks, 519
Feeder, condition of, 165; a cheap, 501
Feeding, 68, 118, 181, 330, 355, 379, 458; simplicity in, 14, 51; without feeders, 174; out-of-doors, 203; swarm hived on combs, 210; for winter, 407
Feeding bottle, 211
Fermented syrup, 375
Fertile worker, 100, 136, 314, 199; eggs and grubs of, 177; getting rid of, 147; theory respecting, 185
Fertilisation, pure, 122; signs of, 240; methods of, 298; of queens, 324, 105; of plants, self, 254; cross, *ib.*; insect, *ib.*; wind, *ib.*; of flowers, 490; by bees, 520
Fighting, 112; and robbing, 273
First swarm, how I lost, 281
Firth, J. C., 169
Fixed-comb system, 211
Fixing dummies, 141
Flat-bottomed foundation, 508
Flavours of honey, 459
Flight of bees, rate of, 364; distance of, *ib.*
Floor-boards, 497; cleaning, 45; size of, 53; moveable or fixed, 220
Flour candy, 488
Flowers for bees, 3; and honey, 301; structure and fertilisation of, 490, 500
Fly-catchers, 370
Food, for bees, 44; moderate supply of, 69; recipes for, 93, 514; for the season, 155; of larvæ, 184; amount of, for winter, 458, 510
Foreign:—Australia, 234, 255, 492; Austria, 138; Canada, 47, 441, 450, 559; Denmark, 224; France, 4, 194, 215, 246, 297, 481, 492, 547, 558; Greece, 278; Hanover, 232; Italy, 138, 148, 194, 475; Minorca, 563; Natal, 563; New Zealand, 168; Norway, 543; Silesia, 245; Spain, 24; Switzerland, 14, 138, 147, 193, 541; Tasmania, 168; United States, 257
Foreign bees, 97, 145, 173, 175, 457; gleanings, 392
Formic acid, 40, 115, 561; use of, 121; and carbolic acid, 165
Forty-frame hive, 487
Foul brood, 26, 52, 164, 181, 188, 197, 206, 228, 242, 250, 273, 324, 326, 536, 365, 371, 391, 396, 398, 403, 417, 423, 434, 437, 445, 447, 454, 457, 465, 468, 482, 489, 550, 556; query respecting, 176; knowledge of, 217; in a district, 224; directions issued for cure of, by Lancashire and Cheshire B.K.A., 242; again! 250, 538; suspected, 338; my experience with, 350; and profitable bee-keeping, 422; curing, 434; cure of, 454, 456; propagating, 466
Foul-broody hive, use of, 200
Foundation, 45, 136, 175, 219, 243; full sheets for sections, 41; making, *ib.*; when and how to use, 42; flat-bottomed wire, 45; fixing, 63; utilising last year's, 64; tests for, 130, 161; purity of, 146; its brittleness, 199; white-coloured, 314; fastening in skeps, 401; supply of, 511; advantage of, 538; *v.* worker-comb, 550, 572
Foundation-fixer, 321, 431
Four-bee-way sections, 217, 336
Fowls and bees, 88
Frame, deep, 64
Frame-distance, 19, 117, 144
Frame-block, 123
Frames, 213; number of, 53, 262, 453; reversing, 61, 110; removing from full hive, 123; improvements in, 125; size of, 152; and sections, 171; combs filling, 239; spaces beneath, 308, 333, 379; number of, to winter in, 339; position of, 444; with divided top-bars, 511
Fruit-blossoms, store from, 93
Fumigating combs, 566
Fumigation, 250; required, 518
Fumigator, 177, 199; salicylic, 164

Galvanised iron reservoir, varnishing, 122
Galvanised piping not injurious to wax, 124
Galvanised receptacles, 10
Geese, value of, 555
Glass hives, 129, 140; inventor of, 76, 88
Glass shade, 200
Glass on alighting-board a preventive of robbing, 566
Gleanings, 28, 39, 147, 286
Gloves, 100; suggestion for, 104
Gloucestershire, district work in, 527
Glycerine, 19; wax balsam, 309
Goat, stung to death, 272; and bees, 288
Godfrey, R. R., 144, 161
Godman, A., 469, 474
Good's candy, 44, 522, 553
Gossip, 196
Granulated honey, 51, 482, 457
Grape sugar, 212
Grass before hives, 198
Green, W. T., his Imperial hive, 326
'Greenock' disease, 283
Griffin, W. N., 234, 420
Grimshaw, R. A. H., his paper on 'The Vocal Organs of Bees,' 34, 56; his work in Yorkshire, 46; his paper 'On the Visual Organs of Bees, 318; his apifuge, 227, 516, 392
Grizzly bear and the bees, 421
Gnazzoni, his comb-presser, 168

Hannington, Bishop, an adventure with African bees, 525
Hawkhurst Cottagers' Competition, 466
Healing salve, 309
Hearing, organs of, in bees, 57
Heather, sending hives to the, 288, 303, 314, 327, 339, 352; a trip to, with bees, 557
Heather honey, 238; extracting, 188, 314; utilising, 389; crop of, how to make the best of, 243
Heddon, J., *Success in Bee-culture*, 2; his hive, 50, 63, 99, 101, 136, 141, 166, 456; his syrup, 14; his recipe for syrup-food, 93; his plan of preventing swarms, 158; his apiary, 471; subject to a bee-disease, 517; half-a-day with, *ib.*
Hedges, willow, 30
Hehner, Otto, 450; on the requirements of bees, 464
Heredity, 23
Hereford honey fair, 121
Hessian fly, 354
Hetherington, Captain, his apiary, 470, 473
Hilbert's fumigating process, 250
Hill's device, 417
Hippuric acid, 417, 487
Hive, a cheap, 484; measurement of, 89; 230 pounds from one, 508; with twenty frames, *ib.*
Hive-building, 554
Hives, 3, 303; examination of, 4; dry, 23; patented in the United States, 52; position of, 4, 417; surface for, 27; smoke necessary in examining, 112; packing, 122; changing, 177;

with moveable and fixed combs, 211; price of, 212; aspect of, 223; removal of, 272; desertion of, 254; modern essential, 276; higher-roofed, 280; shading, 287; for doubling, 453; broken into, 528
Hive covering, 92
Hive-construction, 165, 197, 413, 447, 480; improvements in, by whom claimed, 42, 148
Hive-entrances, 4, 109, 140, 165, 375, 452
Hive-roofs, 379
Hobby, our, 285
Holy-lands, 149
Honey, 364; packing for transport, 10; in Palestine, 18; specimens of, 28; uses of, 29; frames of, 44; in zinc vessels, 73; and pollen-producing plants, 77; harvest, time of, 112; judging, 130; what shall we do with our? 145; analysed, 155; a sting-averter, 116; as an article of food, 191, 357; where it is principally produced, *ib.*; as food for infants, 207; a royal luxury, 213; *versus* sugar, 235, 258; preventing untimed treacle-valve affecting, 230; how and why plants produce, 254; the flavour of, 258, 459; price of, 282, 507, 507, 514, 536, 539, 549, 562; flow, 262, 482; harvest, 277, 314, 354, 370, 385, 453; taking, 277; marketing, *ib.*; transmission of, per railway, to shows, 281; packing, 288; disposing of, 288; used for curing erysipelas, 298; bleaching, 304; specific gravity of, *ib.*; prospects, 308; with taste of prussic acid, 314; when ripe, 314; keeping, 327; extracting from brood-combs, 327; Egyptian babe embalmed in, 331; making bright, 337; and sugar, relative sweetness of, 339; using fermented, 339; ripening, 351; exhibited, 352; in any form, *ib.*; black, 364, 402; and pollen, 365; obstinate, *ib.*; marketing, 367; temperature for keeping, 388, 542; preservation of, *ib.*; bitter, 389; dark, 425; by the hundredweight, 372, 409, 415, 423, 445, 455; tainted, 437; unsealed, *ib.*; from unsealed sections fermented, *ib.* candying quickly, *ib.*; difficult to extract, 437, 488; by the pound, 446; sale of, 475; uses of, in India, 481; granulated, 482; as medicine, 486; large yields of, 487; samples, 488; old, for spring feeding, 508; linden or basswood, 510; sour and rancid, 552; price of, 573
Honey associations, 230, 312
Honey beer, 144; beverage, 275; vinegar, 281; wine, 350; lemonade, 410
Honey-bottle, Walton's, 44
Honey companies, 2
Honey company, another, 529
Honey-comb designs, 200, 205, 228, 283
Honey-dew, 212, 352, 411, 419, 429, 542; produces dysentery, 375; use of, for feeding in spring, *ib.*; and frozen bees, 491; estimation in which it was held by the ancients, *ib.*; how produced, *ib.*; caused by aphides, 420; in Suffolk, 421, 429; different opinions as to its origin, *ib.*; its taste, *ib.*; large quantity of it, *ib.*; its producers, 439, 449; its curative qualities, 450
Honey-drop riot, 528
Honey, imports of, 2, 84, 92, 93, 172, 225, 254, 298, 348, 411, 455, 503, 543, 548
Honey-jars, 528
Honey market, 156
Honey locust, 39
Honey-producing flowers and plants, 227
Honey-sac, 212
Hops, injuries to, by aphides, 449
Hot *v.* cold systems, 333
How to do it, 504, 521, 539
Howard frame, 150; sections, 151; slotted dividers, *ib.*
Howells, Rev. J., 213
Huber's apiary, 186
Humble bees, 226, 207, 217, 302, 325; in New Zealand, 168; the wars of some, 237; visits to flowers, 254; and clover blossoms, 282; proposition for, 436
Humming, 56
Hut, in the, 107, 142, 206, 226, 270, 358, 382, 476, 483, 505, 541
Hybrids, 3, 195, 283, 323, 364

Illustrirtes Lehrbuch der Bienenzucht, 559
Imperial hive, 283
Increase, how and when to, 302
Increasing stocks and honey, 100
India, uses of honey in, 481
Indian bees, 240, 385
Inoculation, 385, 399, 412
Interbreeding, 105
Insect exhibition at Paris, 481
Insects at fault, 63; fertilisation by, of flowers, 254; vision of, 287
Instinct of bees, 152
Introducing queens. *See* Queens
Inventions, British and American, 7; new, in bee-appliances, 450
Invertible frames, 132
Invertible hives, 8, 16, 25, 38, 45, 51, 52, 75, 121, 123, 134, 176; and how I use them, 99; are they watertight? 109
Inverting, 327; frames, Canadian opinions of, 146; sections, 89; skeps, 165
Ireland, bee-keeping, 2, 89
Irish bee-keeping, past and present, 241; standard hive, 298; bee-keeper, 424
Irish B.K.A., sale of members' honey by, 413; standard hive of, 461
Italian hybrids, 240
Italianising, 308
Italians, Carniolans and blacks, 283; their high qualities, 307; or hybrids? 388
Ivy honey, 518

Jenkins, H. M., notice of his death, 34
Jenyns, F. G., *A Book about Bees*, 2
Jonathan, how cousin, gets comb-honey, 280
Jones, D. A., departure of, for Canada, 4; his works and apiary, 471
Jones-Heddon hive, 75
Jottings, 46, 80, 93, 118, 145, 182, 224
Journal, motto for, 60; hints for, 511
Jubilee designs, 180, 287; year, how bee-keepers should honour it, 202; proposed show in year of, 221; the queen's, 265
Judge, appreciation of, 415
Judges, decisions of, 101; hints for, 131; at shows, their decisions, 427
Judging, 162, 187, 425, 130, 389, 402, 415; appliances at shows, 50
July 4, 299

Kandratieff, his apiaries, 194
Kangaroo Island, 255
Keep colonies strong, 509
Keep geese, keep bees, 555
Keeping honey, 327
Kentrapone, 117, 138
Kenworthy, C. J. Fox, death of, 45, 82, 147
Killick's wax-extractor, 76, 119, 313, 330
Knickerbocker and Lock, queen-raising, 470
Kohler method, 137, 293

La Ciociara Abeilles, et son Utilisation, 518
Lady bee-keepers in England and America, 473
Ladybirds, 449, 485
Lancashire bee-cellar, 279
Langstroth hive, 29
Larvæ, food of, 184
Lavender-water, 388
Layens, M. de, 138, 146
Law on bees, 239
Leaf-cutting bees, 62
Lectures on bees and bee-keeping, 41, 133, 139, 148, 171, 182, 246, 493
Lecturing tour, northern, 222
Lee's folding sections, 7; frames, sections, and crates, 69, 125, 145, 160, 183, 203, 218, 225, 354, 370, 385, 417, 431, 469, 474, 552; fixing foundation in, 553
Les Abeilles, 112
Leuckart on the food of larvæ, 185
Ligurian bees, 97, 337, 361; preferred, 112; pure, 122; loss of, through mismanagement, 153; keeping pure, 259; six stocks from two, 44
Ligurianising, 249
Lincolnshire B.K.A., 389
Linden honey, 510
Little Wonder, 403
Locality of apiary, 277
Long words, 195
Lowe, J., death of, 4
Lowestoft apiary, 249
Ludovicus Vives, 490

M'Knight, R., memoir of, 170; at Owen Sound, 471
M'Lain, W. N., his experiments in controlling the fecundation of queens, 431
M'Nally, Messrs., 48, 483, 495
Madagascar bees, 75
Mahin, M., on getting rid of fertile workers, 147; introduction of queens, *ib.*
Manipulating, 68, 354, 392; tent at Manchester show, 465
Manipulation, 4, 294; best time for, 283, 288, 308, 373, 379, 409, 407, 412; in high wind, 339
Maraldi and glass hives, 130
Marigold flower, plaster for wounds, 309
Marketing honey, 367
Martins, 370, 399
Matamata apiary, 169
Meadows, W. P., his extractor, 189
Mead or metheglin, 217; recipes for, 427
Megachile muraria, 262
Mehring, of Frankenthal, his discovery of making artificial comb, 168
Mel et sal, 188
Mella, 275, 292
'Mel sapit omnia,' 16, 172, 181, 188
Metal ends, 211, 226, 303
Meteorogical observations for July, 308
Methyl salicylate, 7, 117, 288
Mexican bee, 79
Mice, 4
Microscope, works on the, 348; Mr. Cowan's in America, 472, 473
Middle sections, removing, 424
Mid Wales, a visit on bee business in, 445
Miller, Dr. C. C., reply to, 390; on bee-keeping as a livelihood, 479
Minorca, bee-keeping in, 24, 563
Modern Bee-keeping, 2
Monkeying with bees, 373
Morren, C., on the structure of aphides, 449
Moth in hives, 209; in spare combs, 352
Mouse, in a hive, 452
Moveable frame-hive, inventor of, 76, 88
Moveable bottom-board, 211
Moveable comb system, 211
Moving bees, 39, 149, 210, 409, 478; half-a-mile, 335; and uniting, 388; a short distance, 389
Musty smell in feeders, 210
My Bees, 501, 512, 521, 532, 544, 559
My year's work, 485

Natal, bees in, 563
Natural swarming, 204
Nectar, 212; in flowers, object of, 184; secretion of, 455
Neighbour, Messrs., invertible hive, 121; invertible section rack, 79, 128; good example set by, 252
Newman, Mr., of Chicago, 471
New races of foreign bees, 139, 160, 175, 185, 195, 218
New Zealand, bee-keeping in, 375, 385
New Zealand and Australasia Bee Journal, 388
Nitro-benzol, 488
Nomenclature, 9, 17, 27, 187
Non-swarming, 53, 144
Norway, bee-keeping in, 543
Notes by the way, 150, 249
Notes on current topics, 336
Nouvelle Flore, 132
Novice, experience of a, 87
Novice's metal corners, 388
Nuclei, 242
Nucleus swarming, 134

Obituary:—M. Mona, 14; C. Fumagalli, *ib.*; Jules Madure, *ib.*; M. Gerard, *ib.*; J. Anderson, *ib.*; A. Butlerow, *ib.*; H. J. Jenkins, 34; F. Kenworthy, 45, 82, 146; J. Bolton, 223; D. Stewart, 420
Observatory hive, 61, 153, 235, 355; stocking an, 100; and judging, 403
One and a half sections, 165
One hundred pounds per hive, 455, 496
One-pound bottles, 361
Ontario bee-keepers, result of their exhibition at S. Kensington, 49; library of, 505
Orchids and pollen masses, 254
Outlines of bee-keeping for beginners, 45, 67, 115, 135, 179, 211, 231, 255
Overstocking, 482

Packing, 22; swarms, 200; honey, 288
Packing-cases, cheap, for transmission of honey by railway, 271
Painting hives, 119, 143
Palestine bees, 18, 140
Pallus Romulus, on metheglin and oil, 214
Parallel *v.* right-angled frames, 363, 379, 384, 412, 432, 522, 528, 531, 550
Parallel system, 379
Parsons and bees, 499
Patent rights, 200
Patents relating to apiculture, 522
Patenting inventions, 69
Pea-flour, 173, 189, 228
Penrose's *Carousal of Odin*, 214
Peppermint, 388
Persevering, by, 358
Pheasants and bees, 64
Philadelphia, Mr. Cowan's reception at, 472
Philology, 181
Phorodon humuli, 449
Photographs of Swiss apiaries, exhibited by Mr. Cowan, 184
Physiological queries, 8, 38, 75, 99
'Pieces,' 176
Pine-wood the best for hive making, 327; attractive to bees, 437
Pipe-cover queen-cages, 430, 574
Pitched paper for quilts, 364
Plant, Dr. A. Von, on cane sugar in honey, 29; on the colour of wax, 146; his experiments on the brood of larvæ, 185; on brood-covers, 467, 481
Platelayer's report, 456
Plinths, 165
Poison-bag, 115
Poisonous honey, 76, 77, 88, 198, 282
Poisonous plants, 205
Pollen, separation of, from wax, 10; grains in honey, 17; storing of, by bees, 40; and syrup, 44; natural, 112; baskets, 212; dried, 230; gathering, 245; masses, 249, 520; vessels, 254; clogged combs, 339, and honey, 498; carriers, 520
Porto Rico sugar, 14, 51, 53, 64, 124
Position of apiary, 92
Posterior legs of the worker bee, 503
Poultry-farming, 167, 486
Pound of honey, visits of bees to flowers for a, 333
Praktische Imker, 542
Preparations, 45, 204
Preparing hives, supers, 70
Preventing swarms settling on high trees, 61
Propolis, 212, 352; use of, 164
Propolisation, preventing, 175

Queen, 35; finding in a swarm, 41; found on alighting-board, *ib.*; preventing entering upper hives, 100, 124; dead, 109, 210, 250, 352, 427; loss of, 112, 129; found alone, 128; depositing eggs, 124; a drone breeder, 188; clipping wings of, 188; raised in April, 200; injured, 209, 294; introducing to two weak stocks, 219; unfertilised, 229; impregnation of, 239; our, and Government, 265; her history, 266; and the bees, 292; lost and found, 301; joining swarm, 314; laying drone and worker eggs at same time, 323; cause of dead, 326; old, 339; loss of, and mating, 352; diseased, 397; not finding the, 401, 423; driven bees without, 427; producing diminutive bees, 437; taking away diseased, 455; superseding, 268, 478; piping, 561; releasing at sunset, 574
Queens, young, 19; raising in swarming time, 40; age of, 89, 200, 478; experiment of raising during queen's presence, 59; changing, 110; croaking, *ib.*; dying, cause of, 118; return of, 165; raising of, 185, 362; balling, 229; effect of cold on, *ib.*; observations on, 236; changing, 307; fecundation of, 308, 324;

in section cases, 312; two in one hive, 337; in second year, 447; young, 453, 462; by post, 531
Queen-cell surrounded with drone-comb, 229
Queen-cells, 212, 180; and drone hatching from, 314
Queen-excluding zinc for dividers, 77
Queen-introduction, 147, 154, 222, 262, 467, 493, 555; another success in, 258, 262, 407, 430
Queen-mating, 314
Queen-raising, 210, 301, 313, 315; in nuclei, 41; or introduction of queen-cell, 281
Queenless stocks, 37, 64, 69, 226, 364, 437, 508
Queen Victoria's train and the bees, 317
Queen-wasps, 89, 180
Quilt, 211; position of, while supering, 478
Quilts, 407, 64, 478; changing, 4; porous, 175
Queries, 111; by a beginner, 176
Query, 551

Rabbet, 9, 17, 27
Races of bees, 2; crossing, 22; the new means of interbreeding, 105, 298
Railway station, bees at, 213
Raynor feeders, leaking, 210
Raynor, Rev. G., his recipe for making carbolic acid solution, 402
'Ready, aye, ready,' 180
Red-backed shrike, 370
Red Indians, amongst, 476
Reed, F., his apiary, 382
Releasing queen, 574
Remedies for coughs, 309
Removing stocks, 69, 123, 219, 489
Renfrewshire Stewarton, 306
Re-queen my stocks, how may I? 297
Re-queening stocks, 250, 327, 330, 336
Request, a, 222, 260
Resuscitation, 164
Retrospect, a, 1
Reversible section rack, 107, 311; frames, 16, 110
Right-angled *v.* parallel frames, 556
Ripening honey, 351
Robbers, how known, 573
Robbing, 53, 124, 136, 330, 355, 385, 406, 575; preventing, 379, 475, 506
Roofs of hives, 109, 211
Root, A. I., 98, 471
Routh, Mr., answers to, 192
Royal jelly, 124, 184, 238

Salicylic acid solution, 8, 28, 134, 136, 417; feeding with, 100; and borax, 427
Salters' Company, 182, 188
Salve for wounds, 309
Sartori, M., his apiary, 138; diagrams, 518, 552
Schedules for shows, 103
Schönfeld, Pastor, on brood-cell covers, 467, 480; on the food of larvæ, 185
Schulz, Otto, on artificial combs, 168
Schweinfurth, Dr., his experiences with African bees, 525
Scotch bee-keeper, a, 322
Scotch exhibit of honey at Glasgow, 421
Scotch hive-manufacturers, 100
Scripture texts, 571
Second-class examinations, 442
Second swarms returning, 308
Section, the one-and-three-quarter, 108; distance, 154; the first, 280; broken, 398
Sections, 237, 354; utilising for feeding, 53; woods of which they are made, 117; in frames, 165; unfinished, 219, 330; removing, 222, 283, 308, 356, 380, 452; skeleton case for holding, 260; treatment of, 262, 311, 312; in a time of drought, 288; removing propolis from, 304; fastened to separators, 314; breaking up, 354; taking, 352; refusing behind hive, *ib.*; slinging, 362; unsealed, 364, 178; removing middle, 384; orange-coloured, 427; the new, 516, 524, 538; bleeding, 529; still on, 542
Section cases and sections, 127; Woodley's, 177, 237, 431
Section-crates, with queen-excluders, 186
Seed-vessels, 254
Selborne Society, 191
Selected queries, 501, 511, 524, 534
Separating doubled hives, 64
Separating of wax, 76
Separators, 143, 175, 237, 294, 524; tin and wood, 100
Shades for swarms, 243
Shelter, planting for, 511
Siebold, Professor von, 325
Simmins, S., *The Non-Swarming System*, 3, 348; his self-acting syrup-can, 68; his Union or Universal hive, 385, 403; size of frames advocated by, 97; hive cover, 122; his comb-honey supers, 267; on buying and introducing queens, 291; his apiaries, 335, 529; *Modern Bee-Farm*, 547
Simplicity in feeding, 14
Sirex gigas, 315
Skep overthrown, 64
Skep, from, to bar-frame, 198
Skeps, feeding, 22; making the best of twelve, 239; *v.* foul brood, 475; coverings for, 490
Skin diseases, wax-salve for, 309
Slots, width of, 154
Slotted dividers, 159, 162, 163, 501
Smoke, 60, 135, 318, 395; how long known, 111
Smoker, for bees, 141, 173
Snow, clear away the, 38
Spain, bee-keeping in, 24
Spare combs, 207
Sparrows and bees, 197
Specific gravity of honey, 304
Spiders, 219
Spinetc, F., model apiary conducted by, 148
Spiræa, essence of, 8, 57
Spreading brood, 124
Spring, dwindling, 15; feeding, 53; flowers, 64, 68; management, 69; by Amateur Expert, 232; examination of colonies, 92, 132; work in apiary in, 93
Stamens, 254
Standard frame, 3, 16, 109, 123, 132, 211, 564; Irish B.K.A., 461; top-bar, 565
Starters of foundation, 311
Stands, 19
Statistics, 410; wanted, 393
Stewart, D., death of, 420
Stewarton hive, 136, 174, 273, 305, 335
Stimulating, 77, 93, 112, 118, 177, 200, 210
Stimulative feeding, 215
Sting, 115; effects of, 370, 402; preventers, 271
Stock, the, 212; dwindling, 53, 339
Stocks, weak, 219; travelling by rail, 123; strength of, 219
Stores, superabundance of, 176; for winter, 354; deficiency of, 462
Storifying, 207, 178
Storifying hive, 212
Sudeley, Lord, his plantations, 377
Sugar for feeding, 89, 112, 338
Sugar syrup, 100
Suggestions, 198
Summer shade for hives, 89
Sundries, 10, 16
Sundry experiences with bees, 163
Sunflowers and insects, 406
Super, bees ascending to, 283
Super-crate, exhibited by Mr. Hooker, 186
Supered colonies swarming, 268
Superficial area of sealed comb, 386
Supers not accepted, 29; giving, 203; putting on, 222; removing, 338; left on hives, 447; and supering, 532
Surplus boxes, 243; cases, removal of, 268
Sussex, and Yorkshire, 25; a voice from, 87; Association, 259
Swallows, 370, 394
Swarm, how to put into a hive, 231; a vagabond, 250; advocature, a, 280; erratic, 293; feeding, 339; can it be left to evening? 508; natural, placed on stand of parent stock, 508
Swarms, 158, 181, 222; putting together, 77; prevention of, 158; causing them to settle, 173; and swarming, 212; possible number of, *ib.*; value of, *ib.*; purchasing, 223; setting up, 243; how to treat, 253, 288; returning, 273; small, 339
Swarming, 212, 373, 532; natural or artificial, 232; time of queens, young and old, laying eggs, 518
Symington pea-flour, 89, 175
Syrians, 136, 130
Syrup, 136, 181, 230; amount stored, 136; in rusty tin, 200; recipe for, 253; for winter-feeding, 417
Syrup-feeder, 110
Syrup-feeding, 23, 452
Syrphidæ, 450

Tabanus bovinus, 314
Tar, 64; for hives, 100
Teachers and bee-keeping, 43, 49
Temperature of hive, raising the, 38; for keeping comb honey, 388, 542
Third-class candidates, 431; certificate, 64, 229, 314, 352, 410
Thirty thousand stings, 412, 414, 444
Thistle honey, 474
Thoughts on current topics, 132, 173, 372
Thymol, 250
Tinker, Dr., his frames, 97
Tit killed by bees, 81; and bees, 197
Tits, 161, 226, 371
Toads, 27, 371, 389
Tomtits, 37, 486, 551; problem, 531, 555
Tooth-stopping, 309
Top-bars of frames, 524
Toronto industrial exhibition, 441, 472; reception of Mr. Cowan at, *ib.*
Transatlantic bee-keepers, 511
Transferring, 89, 112, 124, 134, 188, 273, 294, 315, 416, 512; stores, 431; time for, 115; to smaller, sized frames, 206
Transparent roofing, 208
Trap for escape of bees, 566
Travelling box, 283
Treacle, 403
Trimorphism, 500
Tristram, Canon, 42
Trouessart, M., 464
Turner's honey-squeezer, 64
Twichbells, 478

Uncapped nymphs, 496
Uncapping cells, 100; sealed honey, 123
Unicomb observatory hive, 29, 41
United bees fighting, 437, 484
Uniting, 41, 53, 165, 250, 314, 339, 352, 405, 521; in autumn, 462; queenless stock, 53; two weak skeps, 220
Uric acid, 477, 487
Unslaked lime, 250
Useful hints, 2, *et passim*

Van Deusen, Messrs., their wired foundation, 243
Vaniere, *Prædium Rusticum*, 127
Varnish for hives, 175
Varnishes, 88
Varnishing interior of hive, 210
Vaseline, 8
Veil, 135, 414
Ventilation, 22, 164, 287, 386, 457; in winter, 465
Vespa Norvegica, 314
Vienna, apiarian exhibition at, 138
Village clubs, 61
Visual organs of bees, 318
Vol. XV., end of, 557
Von Berlepsch, on the proportion of honey to wax, 146, 148

Wales, visit to apiary in, 36
Walton, E. C., his honey bottle, 44
Ward, T. F., his cure for foul brood, 397
Warm covering, 463
Warning, a word of, 287
Wasps, 175, 225, 295, 336, 372, 388, 406, 411, 414, 444, 487; a word for, 373; and grapes, 223; how caught, 401; how to destroy, 402; injurious to bees, 384; nest of, and foul brood, 155
Wasp-trap, an Irish, 456
Water for bees, 45, 133, 173, 212, 280, 300, 330
Watertight roofs, 257, 296
Wax extractor, Killick's, 39, 53
Wax foundation, 239
Wax, 512; separation from pollen, 19, 53, 111; its uses, 29; production of, 29, 126; imports of, 91, 132, 553; ancient uses of, 126; history of, *ib.*; adulteration of, 296; analysis of, *ib.*; employment of, for economical purposes, 308
Wax-melting, 25, 42
Wax-moth, 168, 220
Wax-scales, 179
W. B. C. metal ends, 165, 217, 243
Weather, *passim*
Webster, W. B., his lecturing tour through Wales, 1; his swivel frame-lifter, 33, 60; his fumigator, 60, 392; lectures, 4, 61, 216
Weakening sections, 542
Weight of combs before and after slinging, 104; in proportion to comb surface, 364
'When doctors differ,' 96
White ants, 21
White earthen jar for honey, 236
White, Gilbert, 419, 430
Wide sections, 488
Width of sections, 198
Wild flowers, our, 191
Wintergreen, 7, 57, 154, 288
Winter, making up stocks for, 239; passages, 44, 132, 417, 439, 490, 503, 524; preparation for, 278, 407, 452; stocks, 464; stores, 294; quilts, 510; flights of bees, 530; smallest amount of stores for, 534; packing, 538
Wintering, 164, 430; amount of food for, 351; requisites for, 510; bees in cellars, 515
Wire-cloth mesh, 89
Wiring frames for foundation, 256
Wired foundation, 259, 267, 303, 385, 400; a desideratum, 511
Woiblet spur embedder for fixing foundation, 115, 136, 139, 144, 151, 177, 186, 197, 220
Woodleigh, 152, 162, 175, 217, 423, 462, 466, 536
Woodley, A. D., his tin section cases, 177, 237 431
Worker-bees, 136; age of, 157, 208, 228, 236, 249
Worker-cells, 180
Worker-comb, 180
Work for B.B.K.A., 443

Xenophon, his account of effect of poisonous honey, 198

Yeast, 463
Yorkshire, small voice from, 26; County Association, 37, 50, 61; notes, 299
Young, Ivan, *Praktish*, 302; at Toronto exhibition, 441, 472

Zig-zag slides, 528; entrances, 552
Zonbareff, M. A. de, his pamphlet on honey, 210

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Editorial, Notices, &c.

A RETROSPECT.

We have passed the threshold of another year, but before we commence the activities and duties of that on which we have entered it is desirable to cast a retrospective glance on the progress of apiculture during the year 1886.

In looking back, then, on the year that has just passed our mind is chiefly attracted to the numerous shows which have been held in various parts of the United Kingdom. We are pleased to be able to note these visible indications of the growing interest taken in apiculture by agricultural and horticultural societies and by the public generally. Wherever a meeting of a society for the promotion of agriculture, horticulture, or floriculture, is now held, the bee-keepers are invited to take their part in adding an attraction and in giving a zest to the show. The claim of Apiculture to be allied to Agriculture is now generally recognised. This has been notably the case during the past year. The bee department at the Royal Agricultural Show, held at Norwich, was no unimportant auxiliary to the attractions of that exhibition. The visit to the department by their Royal Highnesses the Prince and Princess of Wales, their daughters, and suite, will cause it to be borne in remembrance by bee-keepers. On that occasion the number of exhibitors was very large and the exhibits were of a very diversified character, and the most improved methods of bee-culture were brought before the notice of British agriculturists in a very practical form. Again, when the Royal Horticultural Society renewed its provincial shows by holding one at Liverpool, the Council of the British Bee-keepers' Association rendered material assistance towards the arrangement of a department for bees, hives, honey, &c. The Royal Counties Society, which had held its meeting in 1885 at Southampton, this year held it on Southsea Common, on which occasion it was accompanied by that enterprising Association the Hants and Isle of Wight B. K. A.; and as this was the first occasion when a bee show had been held in Southsea, this Association made the best of the opportunity thus presented. The meeting of the Lincolnshire Agricultural Society, held at Lincoln, was also an opportunity which the Lincolnshire B. K. A. took advantage of, much to the promotion of bee-keeping in that district. But the great and outstanding event of the year has been the South Kensington Exhibition. Never before has there been made so effective and complete a display of the products and appliances connected with bee-keeping. To be fully realised, it was necessary that it should have been witnessed. It was held in one of the finest buildings in the United Kingdom, in the large and commodious Conservatory adjoining the Albert Hall. No less than 290 exhibitors sent contributions to the Exhibition, and the amount of honey was calculated to be nearly twenty tons. The honey was of a superior quality, and it was exhibited in a most attractive form. There was a great rivalry among the competing counties for precedence. The premier prize was awarded to the Lancashire and Cheshire B.K.A. Conferences were held on the occasion, when important papers were read by several leading bee-keepers. After an interval of five weeks the delegates from Canada exhibited their honey at the Exhibition. This exhibit consisted of about eighteen tons of honey; but the flavour of the honey was by the best judges considered to be not comparable to that of the United Kingdom. The opportunity of practising fraternal courtesies and amenities towards the Canadian bee-keepers was not neglected; and many pleasant and instructive meetings were arranged, in which the mutual methods of conducting bee-keeping in Canada and Great Britain were earnestly discussed. The banquet, which was held in South Kensington Exhibition, and the Conversational Meeting in the evening, are amongst the most pleasant reminiscences of our retrospect. The visit of the Canadians will be long held in remembrance as a chief feature of the year 1886.

There has been a considerable development of the work of the B. B. K. A. in the counties. Dr. Walker was specially deputed to visit South Wales with a bee tent. In Glamorganshire the cause was much advanced. Thence he proceeded to Cardiganshire and Montgomeryshire. A lecturing tour was also conducted by Mr. W. B. Webster, who delivered lectures in the principal cities and villages in North Wales. Considerable progress has been made in Northumberland; and as the Royal Agricultural Society will hold its next annual meeting, in July

at Newcastle, it is expected that the work already begun there will be then consolidated and completed. The Association representing the counties of Lancashire and Cheshire has made considerable progress this year. By the presence of its representatives at the Liverpool and South Kensington Exhibition and by their regular attendance at the quarterly meetings of the B. B. K. A., the northern counties have been brought well in touch with the central Society. Ireland, too, has progressed considerably during the year; although not largely represented at the South Kensington Exhibition, it held its own, and secured a large share of the honours bestowed in proportion to the number of exhibits sent in for competition. The future of bee-keeping in the United Kingdom materially depends on the loyalty of the affiliated Associations and the support they are prepared to render to the Central Society. There is yet much fallow ground to be broken up, and the work before the Parent Association is as arduous as it is important. May all bee-keepers give cheerful and ready assistance in promoting the progress of the work which yet remains to be done.

In literature we may point to the large circulation *Modern Bee-keeping*, issued under the auspices of the British Bee-keepers' Association, has attained. A new edition, bringing the work up to the present times, consisting of 10,000 copies, has been issued. We may say, without fear of contradiction, that the circulation of this work is unprecedented in the annals of bee-literature, being far in advance of any work of a similar kind. Mr. Cowan's *Guide-Book* has also met with much success during the year; it has now reached its eighth edition, and the number of copies issued has been 15,000. The work has already been translated into the Swedish and French languages; and arrangements are now being made for its being translated into Danish, Russian, and Spanish. Mr. Cowan has also sent forth a pamphlet on *Doubling and Storifying*, which will prove of great service to bee-keepers desirous of increasing their produce of honey. A cheap edition of the Rev. F. G. Jenyns' work on *Bee-keeping for the Young* has been published. The first volume of Mr. Cheshire's work is completed, and the second is being continued in monthly parts.

By the aid of the various shows, and the action of the Honey Companies, the sale of honey has been much popularised, and a great impulse has been given to its sale during the year. Already we hear that the wholesale buyers are unable to purchase sufficient sections to meet the demands made upon them. This is promising news for the cultivators of honey and emphasises the advice we have frequently given to bee-keepers, namely, not to place before the public immediately after the honey season the whole of the produce of their apiaries, but to keep it in reserve till they are warranted in asking and obtaining a higher price for their honey. We hope the attention of bee-keepers will, in the expectation of increasing amounts of honey being produced, direct their attention to the discovery of further utilities of honey in the way of beverages, comestibles, &c.

During the year considerable attention has been paid to the introduction of new races of bees. From Cyprus, Carniola, the Holy Land, South Africa, America, &c., there have been considerable importations. These attempts to introduce bees of superior powers have found much encouragement amongst our leading bee-masters, but the English black bee still continues to hold its place in the estimation of the great body of bee-keepers.

The imports of honey for the year are not yet complete; we hope, however, in the course of the present month to have full statistics before us, when we propose to take the opportunity of dealing with both the honey imports for 1886 and the wax imports and exports for 1885.

Notwithstanding the grand display of honey at the South Kensington Exhibition, the season of 1886 cannot be pronounced to have been a prosperous one. In some localities it has been favourable, but the yield in the United Kingdom generally has not reached the average of previous honey years. Hope, however, ever dwells in the hearts of bee-keepers; and we trust, with enlarged experience, and with improved appliances, their best and brightest hopes for 1887 may be fully realised.

G. H.

USEFUL HINTS.

To our readers, old and young, experienced and novices, a hearty greeting with the new year: may it prove to each and all a year of happiness and prosperity, and not less so to our great care, the bees. The old departs, the new enters—enters in a mantle of white, departs with storm and hurricane, fatal, alas, to many a poor mariner—enters with joyous forecast. the pleasures of hope, to all, save the aged, the worn, and weary. Days are creeping out, fog and cloud will soon give place to sunshine, and our little sun-worshippers will soon again be flitting from flower to flower, and carrying home to their callow brood the precious burdens of pollen and nectar. At present many of our hives are deep below the banks of snow, but we cannot help anticipating, in thought at least, the good time coming. The late storms, we fear, will have disarranged many apiaries. Fortunately, our own have stood firm—not a hive overturned, not a roof displaced.

The departed year will assuredly rank as an *annus mirabilis* in the records of apiculture. Progress has been its watchword, and long will it be remembered in connexion with the gracious patronage of Royalty and the visit of Colonial apiarists to our shores. And not less, perhaps, by the importance of the bibliological additions to scientific and practical apicultural literature which have issued from the press. New editions of those truly practical works—Cowan's *British Bee-keepers' Guide*, and *Modern Bee-keeping*, have been called for; and Mr. Jenyns' excellent little work, *A Book about Bees*, has been published in so cheap a form as to render its usefulness to the rising generation tenfold that of the previous issue. Professor Cook, treating of the new work of Mr. James Heddon, *Success in Bee Culture*, says:—

'It is wholly, from first to last, practical. Rarely does any work bring such a profusion of rich, practical hints as does this. On every page is some suggestion which commends itself to the wise apiarist. I would advise any bee-keeper who has not read *Success in Bee Culture* to procure a copy and study it thoroughly, since nothing will tend more to win success.'

We need scarcely remark that Professor Cook is strongly in favour of 'inversion,' and uses the Heddon hive, of which he speaks most highly. He also refers in flattering terms to Mr. Simmins' *brochure, The Non-Swarming System*, as a 'racy little work from England,' and says:—

'If unfinished combs next to the entrance of a hive are a sure security against swarming, it is surely an interesting fact which can be turned to good use. Mr. Simmins' idea of crowding bees into the sections reminds me of much that has been said by two of our distinguished bee-keepers, Messrs. Heddon and Hutchinson. Simmins' method of direct introduction of queens is not new in America. This work, I am sure, will interest and benefit the American bee-keepers who may read it.'

We think the Professor confuses Mr. Simmins' former and later systems of 'Queen Introduction,' since his former plan, of introducing a queen with brood and bees, has been long practised in America and elsewhere; but so far as we are aware, his later system, of introducing a queen *sola*, after dark, at the top of the hive, and after thirty minutes' fasting, has never before been set forth as a system, nor practised individually. We still, therefore, adhere to our motto of '*Suum cuique*,' in this, as in other cases.

Hives and Standard Frames.—In our last 'Hints' we confessed to a longing for a larger frame, which might be worked in connexion with the present Standard, and expressed an opinion that such a frame might be successfully introduced by private enterprise. We are pleased to learn that Mr. Simmins is of the same opinion, and that for three years his brain has been at work on the subject, resulting in the production of a hive for which he is now obtaining a patent. By the courtesy of the inventor we have been favoured with a sight of the drawings, and a full description of the hive. To this hive Mr. Simmins referred in his letter (No. 700), and stated that if there appeared a desire for a larger frame, he might at some future date describe the hive he used, in which could be worked advantageously a 14″×14″ frame together with the present Standard. Without going into a full description of the hive—which, we hope, together with the drawings, may shortly appear in the *Journal*—we may say the distinctive features of the hive consist of four novelties, which are more particularly to be protected by patent, viz.:—(1.) A key arrangement for holding shallow frames and skeleton section-holders in place, for inversion, when desired. (2.) Folding skeleton section-frames, which can be used either with or without a rack, in various parts of the hive. (3.) A pliable adapting-board, and (4) a weather rabbet for protecting the joints of the hive. Besides these, there are other features entirely new to us, such as metal rests let into saw-cuts on floor-board; a sunk floor-board forming a permanent feeder; as hive-entrances, small circular holes; the plan of suspending the 14-inch frames, which are partly close-ended; bee-space provided at top of frames instead of bottom; an ingenious and simple plan of enlarging or diminishing the bee-space; the shallow, or super-frames (12″×6″), standing *on end* close up to the larger ones, &c. The hive itself, when complete, with roof, forms a most picturesque object, and its appearance is thoroughly English, sound, and substantial, and it is clearly impervious to weather.

Taken as a whole it is simplicity itself, notwithstanding its various parts—all of which can be worked on the invertible system—although Mr. Simmins is not an advocate of the plan—and we cannot but augur a successful future for a hive which unites in itself so many good points, and which can be worked with the greatest ease, both with the standard and larger frames.

Flowers for Bees.—We have received a beautifully illustrated annual from Messrs. Webb & Sons, which they style *Webb's Spring Catalogue of Vegetable and Flower Seeds*, and in which they give a short but useful essay on 'Flowers for Bees.' We quote the following as of considerable importance and interest:—

'Wherever fruit trees are grown in quantity, either out of doors or under glass, no better assistants in ensuring fertilisation can be obtained than the bees, and some of the most successful market fruit growers attribute the regularity of their crops to the industrious aid of these insects. Most of our hardy fruit trees, however, flower in early spring, and there is a long period during which the bees have to seek their honey and pollen supplies in other directions. To assist in this we have prepared the following list of plants that are most serviceable for the purpose, and which are most frequented by the bees. The object is to obtain as long a succession of bloom as possible, and this can be effected with most annuals, or biennials, by sowing batches of seed at different times, so that plants are had in all stages. Have a good quantity of whatever plants are employed, as patches are not of much use, and will be scarcely sufficient to keep the bees at home, and it should be remembered that if this can be accomplished much time will be saved in the filling of supers, a quick return in honey amply compensating for expenditure in the purchase of seeds. Four plants that should be grown extensively are Limnanthes Douglasi, mignonette, borage, and the corn-flower (*Centaurea cyanus*). As much ground as possible should be devoted to these. Sweet scabious is a good plant for summer flowering, and does particularly well on banks or mounds. Sweet alyssum and the white arabis also merit a portion of the ground, and will well repay for the space occupied. Wallflowers are almost indispensable in early spring, and cannot be too freely employed. The phacelia is a capital plant for a later period, as also are candytuft, stocks, and sweet peas.

'Suitable additions to this list will be found in the following annuals:—Ambrosia Mexicana, Calliopsis bicolor, Cerinthe major, Clarkia pulchella, Collinsia bicolor, Collomia coccinea, Gillia tricolor, Leptosiphon densiflorus, Lupins, Nasturtium, Phlox Drummondi, and Whitlavia grandiflora. Shrubs like the berberis, lilac, and ribes, are useful, and among trees the lime and sycamore are perhaps the best.

'All the sunflower tribes are favourites with the bees, also thyme, and most herbs may be added with advantage.'

It is a pleasing circumstance that one of our largest and most successful firms of seed-growers acknowledges the growing importance of apiculture, as Messrs. Webb do by stating that:—

'The number of amateur apiarians has increased greatly in the past few years, for, apart from the bountiful stores of honey so easily obtained under the modern system of management, it is now generally recognised that bees perform a most important work in the garden.'

We may here mention that Mr. Cowan informs us that he has grown *Echinops sphærocephalus* for eight or ten years, and classes it high as a bee-plant.

Many of our readers, no doubt, are well acquainted with *Echinops Ritro*, an ornamental perennial border-plant, which bears a blue flower, and of which bees are very fond.

Cyprians.—Much has been written respecting the Cyprian bee, some praising it highly, others condemning it utterly. Our own view, after some years' experience, is that it is, when thoroughly acclimatised, the best honey-bee of all. We have no difficulty in handling them, although, as with other races, colonies vary in temperament. The capping of their sections is extremely light, consequently the honey is more apt to 'sweat.' The breeding power of the queens is simply marvellous, and large hives, with ample ventilation, are required to prevent swarming. The cross between the Cyprian and Italian is one of the best, if not *the* best. Next we should place that between the Syrian and Italian, or between the Syrian and Black. All these hybrids are splendid workers, extremely prolific, and produce fine sections, though somewhat more lightly sealed than those worked by pure Blacks. The cross between the Carniolans and the Eastern races has not proved very

successful with us in a few cases we have tried, but we hope to experiment further in this direction.

Thus far our Carniolans have failed to give anything like the surplus obtained from Cyprians, Syrians, Italians, and Blacks, but they are, undoubtedly, most amiable in temper, so much so, indeed, that 'a little child may lead them.'

Entrances, Manipulation, Changing Quilts, &c. Frost-bound as the country is, and blocked with snow, it seems sadly out of place to discuss these matters, but when the thaw comes, and the sun shines, a change of quilts, from damp to dry, will be advantageous. Entrances are best kept at summer's width, and should occasionally be cleared from dead bees and other refuse.

When changing quilts the amount of sealed honey near the tops of the frames should be noted, and, if required, food must be supplied in shape of candy, &c., beneath the renewed quilts, since strong colonies will be breeding now, and the consumption of stores will increase daily.

But examination must be made on fine warm days *only*, and our watchwords must still be *rest* and *quiet repose*.

After long frost dysentery will appear in many colonies, which must be treated as previously advised. Nothing tends more to keep bees healthy than an occasional cleansing flight. On Christmas Day, which was bright and warm, all our strongest colonies were in full flight, and their cheering hum spoke pleasantly of summer days to come.

Assuredly a sheltered position, with sunny southern aspect, conduces towards the healthiness of an apiary. Beware of bluetits and mice, keep the hives snug and warm, with plenty of covering, disturb as little as possible, and make all necessary preparation for the busy time coming, and when at last the harvest arrives you will reap the due reward of foresight and industry.

THE DEPARTURE OF MR. D. A. JONES FOR CANADA.

The last of the Canadian delegates, Mr. D. A. Jones, of Becton, Ontario, has taken his departure from our shores. Mr. Jones's time at the last was (as usual with parties sailing for the West) fully taken up, but the Lancashire and Cheshire bee-keepers were fortunate to have him spend his last evening in England (Wednesday, the 28th December, 1886) with some of their members at the Bear's Paw Restaurant, Liverpool, when the few members, who at the short notice Mr. Jones had given them of the exact day of his departure had been gathered together, spent a very enjoyable evening, Mr. Carr entering into a very interesting discussion on the merits of the improvements in the Carr-Stewarton hive, and on the best means of putting honey up cheaply and attractively for sale.

Mr. Jones, to those who saw him off at the steamer, expressed himself very warmly at the kindly way he had been entertained during his visit to England.

DEATH OF MR. J. LOWE.

All who take interest in bee-literature and doings will receive with regret the sad tidings that Mr. John Lowe died on the 15th December at his residence, Slateford House, near Edinburgh. From time to time during the last twenty-five years he has enriched the pages of the *Journal of Horticulture* with interesting communications on bee-subjects. He also, for a period, contributed weekly articles on the same subjects to the *Farmer*.

Mr. Lowe was a skilled practical bee-master, and first set up an apiary, within Edinburgh, near the Dean Bridge, but the Egyptian race which he introduced proving offensive to the surrounding inhabitants compelled him to remove it.

As an able controversialist and elegant writer he had few equals. He held his opinions with great tenacity, and to his skirmish with Mr. Woodbury in 1863 on the subject of foul brood, and his persistency in maintaining it was only an artificial disease created by experimentalists, we are indebted for the efforts that were subsequently made to discover its cause and cure. The controversy brought into the field the testimony and experience of the highest authorities of the day, such as the 'Renfrewshire Bee-keeper,' the 'Hampshire,' the 'Lanarkshire,' 'B. and W.,' &c., &c. The result of their evidence was to prove that 'foul brood' was a *real* and not an artificial disease.

As a man and member of society Mr. Lowe was genial, affable, and unwilling to offend, being animated by a true Christian spirit, and cherishing the kindliest feelings towards all. It was his lot to be bereaved of his wife and children, save one daughter who survives him, but with fortitude he bore the loss, and meekly bowed to the stroke. Many of his reflections having reference to time and mortality are embodied in beautiful pieces of poetry.

Mr. Lowe was much respected by the circle in which he moved, and to show their appreciation of his worth and service in the Clydesdale Bank, where he long held a responsible position, the Directors, on his being attacked by paralysis three years ago, generously retired him on a life pension of 150*l*. per annum.

The death of such a man, followed as it was on the 18th by that of Dr. John Mackenzie, who in 1860 wrote a little book on *The Management of Bees*, makes a great blank in the bee-world.

MR. CORNEIL'S SECTION-CRATE AND SECTIONS.—AN APOLOGY.

I received a letter this morning from Mr. W. Chitty, of Pewsey, in which he complains that in the *B. B. Journal* for November 18th I used words that go beyond friendly criticism. I very much wish he had called attention to them in the *Journal* the following week, as it would have given me an earlier opportunity of tendering him, which I do now, my humble apology if any of my words have caused him any annoyance.—Amateur Expert, *January 1st*, 1887.

FRANCE.

At the close of the recent meeting of the 'Société Centrale d'Apiculture et d'Insectologie' of Paris, a discussion took place regarding the Bee Association, or 'Groupement Apicole,' so designated, to be formed for Seine-et-Oise. The Chairman pointed out that it was for the promoters of the movement to explain to the members present the basis upon which this new organization was to be brought about. Whereupon Monsieur Asset urged that in the articles of constitution provision should be made for the establishment of a practical apiary, stating that, although the primary object of the proposed 'groupement' was that of opposing certain municipal regulations which were considered an encroachment upon the bee-keeping interests, the apiary he advocated would serve as a means of raising funds for the Association.—*L'Apiculteur*.

According to the *Apiculteur*, the duties payable upon bee-produce, when imported into France by sea, are as follows:—*Wax*—Brown, yellow, or white, in admitted bulk, 1 franc per 100 kilos, except Algerian, which is duty free. When manufactured into candles, 10 francs per 100 kilos. Wax refuse in bulk is also free. *Honey*, when imported by sea, is subject to a duty of 10 francs per 100 kilos gross weight, which brings it up to about 14 francs per 100 kilos net.

BERKS BEE-KEEPERS' ASSOCIATION.

Windsor Branch.

The above branch held its annual general meeting at the Albert Institute, Windsor, on Thursday, December 16th. The meeting began with the hon. secretary's report for the year 1886, and then followed the election of officers for the ensuing year. The hon. secretary, the Rev. R. Errington, congratulated the society upon its satisfactory condition. In January, 1886, it became affiliated with the county society. The number of members on the books last year was 17. During the last twelve months they had risen to 42. In August the branch held a show in the grounds of Clewer Park, in conjunction with the Clewer Horticultural Society. Prizes were given away to the amount of about 6*l*. The manipulating tent, presided over by Mr. A. D. Woodley, the expert to the County Association, brought in between 2*l*. and 3*l*. to the receipts. There were some good samples of comb and run honey shown, and one cottager sent over 100 lbs. of filled sections. Considering the size of the branch the show may be looked upon as very successful. The receipts amounted to 11*l*. 15*s*. 0*d*., while the total expenditure was 9*l*. 1*s*. 11d., leaving a balance of 2*l*. 13*s*. 1*d*. The hon. secretary was invited again to take office, and the former committee were unanimously re-elected.

After the business of the meeting was concluded a social gathering of friends of members was held. Admission was by ticket, each member receiving two for distribution. Several members of the committee gave short addresses on various subjects connected with bee-keeping, and a discussion followed. There was a small exhibition of appliances by Mr. Sevenoaks, and honey by the hon. secretary. Mr. John Minter, of Clewer Nurseries, brought a microscope, and exhibited some very interesting slides. A table, presided over by Miss Goring, a member of the branch, was set apart for light refreshments in the shape of tea, coffee, and biscuits, the arrangements having been carried out by Mr. G. Cartland. After a very pleasant evening the company dispersed about ten p.m., several persons having given in their names as members for 1887.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Upper St. Martin's Lane, London, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. Huckle, *King's Langley, Herts (see 2nd page of Advertisements).*

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

ELECTION OF COMMITTEE-MEN.

[753.] As the time approaches when the members of the British Bee-keepers' Association will be called upon to elect the Committee for the ensuing year the thought occurs to me, as indeed it has on previous occasions, that some guidance from you would be of much value in regard to the choice of the candidates who may offer themselves for the coming year. In venturing to broach the subject, let it not be thought that any pretence is made by me to stand in any other position than that of an ordinary member of the Association, heartily desiring its welfare; nor more particularly let it be supposed that any observation of mine should imply other than the fullest appreciation of the invaluable services which the Committee has devoted in the past, and notably during the year now closing, to the interests of the Association; but my feeling is that gratitude for these services should, besides securing for them a stereotyped expression of thanks at the annual meeting of the members, show itself in endeavouring to make the Committee more perfect in its individual composition, so that the work performed may be the contributions of all its members. An examination of the reports of Committee meetings in the *British Bee Journals* shows that a certain number of gentlemen devote a large amount of time and labour, not to mention expense, in promoting the interests of the Association; and it may be concluded that from this section of the Committee the numerous sub-committees are also drawn. Now as the interests of the Association are so faithfully guarded by these more diligent members, it seems to be incumbent upon the electing body that no imperfect workers, or drones, should find a place in the new Committee. It is presumed that the number forming the Committee is requisite to carry on the work of the Association; if, therefore, any gentleman now forming one of that number foresees the probability of his not being able to undertake his full share of the work, it becomes his duty to abstain from offering himself.

You, Mr. Editor, may materially assist and influence a good choice by placing before your readers a record of the attendances of the several members at ordinary and special Committees during the past year, and by bringing under notice other eligible persons whom it would be to the interests of the Association to have upon the Committee.

And here the thought strikes me that desirable as it is that the Committee shall be within easy distance of the place of meeting, one exception might be made to secure if possible an eligible member residing in the district in which the Royal Agricultural Show is held, who would thus be able to render valuable assistance to the Committee in carrying out the important work of the bee department at such show. I merely put this forward as a suggestion, thinking that something practical might arise out of it.

In venturing to open the subject I have endeavoured to avoid giving offence to anybody, and I may have erred in judgment in busying myself upon it, but if my act results in bringing assistance to the harder-worked members of the Committee I shall be rewarded.

Wishing you a happy new year, and prosperity to the *Bee Journal*, as also to the cause it aims to promote, I am, &c.,—J. Garratt, *Hockenden, St. Mary Cray, Dec.* 28.

[The record of attendances at Committee-meetings would only partially shew the interest taken by the Committee in the work of the Association, as a large amount of work is done by those who are unable to attend through means of the post. If a less number of Committee-men were elected by the members, and the Committee were given power to elect the remainder, as proposed by Mr. Stewart at the last annual meeting, many eligible members might be drafted in, and the large amount of work would be more easily overtaken.—Ed.]

NOTES OF SEASON 1886.

[754.] When I examined my hives in April I found all very flourishing and happy, except my two stocks of Ligurianised fiends, who had some honey left but no brood. I had removed their queens in October, and substituted two British princesses in their room, but the demons had evidently objected to the prospect of a peaceful reign, and had repeated the crime of January 30. I placed in the midst of each hive a comb full of brood and having a queen-cell on it; one stock immediately left the hive in disgust and quartered themselves upon their next neighbours, leaving the brood to perish; the other reared the brood and then left the hive, compelling the third hive from their own to make

room for them. They did all (and more) of the sentry work required in the two hives during the summer, and just because my gardener chose to work one day for an hour in front of them, they sallied forth and stung some men who were slating the roof of the house, a hundred yards off. Several were still alive in October who must be more than a year old, showing that the common idea of the working bee living only six or seven weeks in the summer is incorrect. Should any be still surviving next season I will let you know. Virgil gives seven years as the limit of a bee's life. Doubtless their numerous enemies, birds, &c., shorten their average life immensely, but I am not inclined to think that such industrious creatures die of premature exhaustion.

Upon two of my hives I placed very large sections, $12 \times 5 \times 2$ inches, with wooden separators. A few of these were filled with lovely large combs, quite even, of about 4½ lbs., but in most of them the bees had built from top to bottom four large lemon-shaped combs, attached merely by the button at each end; the spaces between these were filled up with flounce-shaped pieces, broad and wide at the bottom and rising up to a point, built on to the dividers. It was a most beautiful specimen of constructive engineering, but not very convenient for unpacking.

Two swarms in succession absolutely refused to make themselves comfortable in one of the hives vacated by the queenless Ligurians, though it was full of clear last year's comb. In each case they deserted it the next day. I suppose they knew by instinct that the habitations of the wicked could never be blessed. So I had to melt all the combs down and purify the hive thoroughly before I could get desirable tenants to take to it.

On the whole, my yield of honey per hive this year was about half that of last year, which I think pretty good, considering that we had only twenty-one really fine days between May 15 and August 15.—C. C. James, *Papworth St. Agnes Rectory, St. Ives, Hunts.*

A BEE-MAN'S TRIP TO AMERICA,

And his Gleanings from some Transatlantic Bee-keepers.

[755.] Acting on your suggestion I purpose for the benefit of our fellow-apiarians to take notes of such points of American bee-keepers' practice as are most likely to cause discussion or experiment in new directions in the old country, omitting all mention of such plans as most resemble our own. My object in this journey being chiefly connected with the manufacture of appliances my visits will generally be to those who are well known in connexion with that industry.

Dr. Tinker, New Philadelphia, Ohio.

A pleasant twelve days' sea voyage and a tedious twenty-four hours in 'the cars' brought me at 8 p.m. within a few minutes' walk of the doctor's fireside, where, though unexpected and unknown, a letter of introduction from my father and an explanation of the object of my visit immediately procured for me a hearty welcome. Being unable to inspect bees or works at that late hour we naturally fell to talking of ourselves. The doctor had been suffering for some years from a slight but incurable deafness, which he found to be such an impediment to his obtaining eminence as a physician that he resolved to abandon his practice in favour of his present occupation, which had always been in accordance with his natural tastes. In his new vocation he has been so far successful that though of comparatively a few years' standing he is already justly considered one of the best authorities on bee matters generally in the United States. He has chiefly devoted his attention to the perfection of cellar-wintering, queen-raising, and the manufacture of dovetailed sections. He finds that if kept in the dark, bees go into the hibernating condition at a temperature of 50° Fahr., and that their slumber (?) becomes more intense and the consumption of food less as this is reduced, until 41° are reached, beyond which point activity increases and more food is consumed. In a cellar kept at 41° a stock remains quiet and without taking food for seven to eight days, when the bees wake one another up, have a concert and a feast, and again go to sleep for a like period, consuming only an average per stock of one pound of food per month, and when put out, after two and a half to three months' confinement, voiding very little fæces. Bees kept on their summer stands usually consume four or five times as much food, and are always much weaker in spring. He generally puts his hives into winter quarters about the middle of November, and on the first fine day in February he prefers to take out all stocks and give one flight, though he does not consider this necessary. They are then replaced in the cellar and the temperature increased to 48°, when breeding commences without feeding, and when spring weather becomes assured they are put on their summer stands. He is convinced that this method is a long way ahead of any other, and his opinion is supported by the fact that in the spring of 1884 he was the possessor of the only live bees in his county, all others having perished.

For queen-raising he much prefers the 'grafting process.' He removes the queen from any strong stock, and three days afterwards examines for queen-cells. All such which are deficient in royal jelly he destroys as worthless, while from such as are well supplied with their food he removes the larvæ only, replacing them with others from worker-cells of the stock he selects to breed from, and being careful not to introduce any larva of over $\frac{1}{16}$ in diameter when curled up. For the removal of the larvæ he uses a thin basswood twig, with the bark whittled to a long quill-pen-like point, and finds that by selecting small subjects a failure very rarely occurs.

He thinks that queens raised from more mature larvæ are generally the largest, but is of opinion that those raised from smaller worms generally live longer and are more prolific.

An inspection of his apiary and machinery next morning proved most interesting. His establishment is not a large one, but by employing a special machine of his own invention, and by giving their manufacture his personal attention, he produces sections which for whiteness, smoothness, and accuracy, are admitted by his rivals to be unequalled. He uses only white poplar, which cannot be made into one-piece sections, but in spite of this drawback the beautiful appearance of his dovetailed boxes causes a demand which he finds it difficult to supply.

A brief inspection of his apiary brought a very pleasant visit to a close, and I started on my road to Medina with mixed feelings of regret at leaving one whom I already respected and of pleasure in the prospect of making the personal acquaintance of the well-known veteran, Mr. A. I. Root, of whose establishment I intend writing you in my next.—J. A. Abbott, *Medina, Ohio, U.S.A., Dec.* 15.

BEE-KEEPING IN CANADA.

[756.] Mr. C. N. Abbott's interesting letter under this heading, in your last issue, will have done much to enlighten English bee-keepers on the way our children manage things apicultural in Canada; but it cannot be regarded as complete in itself. With characteristic modesty, Mr. Abbott has contented himself with merely mentioning the qualifications of his correspondent as those of a purely negative kind, such as that he is 'a

young friend lately arrived at Ontario,' and 'a young man who is not, and never has been, a bee-keeper.' The letter you have already published, however, will satisfy bee-keepers that any short-comings or omissions on the part of the correspondent will be more than supplemented by the graphic and humorous pen of Mr. Abbott.

The hives and sections exhibited over here by our Canadian friends attracted so much attention among practical bee-keepers that it will be a surprise to your readers to learn that they have not been adopted in the country of their birth, and that those lovely sections we all so much admired at the Colinderies were produced in hives something like those of twenty years ago, and not such as Mr. Abbott has at Southall. Why is this? Mr. Abbott is manifestly prepared to discover a reason. I hope he will not disappoint us. Let him be careful, at the same time, to indulge in charitable criticism only of our late visitors, and not lay himself open to the charge of speaking unkindly of them as soon as their backs are turned, after they had received every kindness and hospitality during their visit, which, I trust, afforded them as much pleasure as it did ourselves. *Apropos* of such criticism, and in reference to Mr. Abbott's postscript, the Canadians regard their country as an integral portion of the British Empire, and you can hardly offend them more than by calling them 'Yankees.'—A BRITISH BEE-KEEPER.

BRITISH AND AMERICAN INVENTIONS.

[755.] Like 'Amateur Expert,' 'Renfrewshire Bee-keeper,' and others, I must add my protest against the theory that 'nearly all of the appliances have been furnished us by the inventive genius of the Americans.' Take one-piece sections of the present day as an example, and undoubtedly one of the most important and useful inventions.

As I think probably very few bee-keepers are aware of the real origin of folding sections, a short history correcting the *generally accepted opinion that they are an American invention*, may not be out of place at the present moment.

At one of the annual exhibitions held at South Kensington, that for 'Agriculture and machinery used in connexion therewith,' and, if I mistake not, held in the year 1872, Messrs. Colman, of Norwich, had on exhibition, and in work, a machine for making boxes for packing tins of mustard; these boxes had V grooves cut at the required distances, just in the same way as the present one-piece folding section. To make these boxes, boards, about 5 ft. long, 6 in. wide, and ½ in. thick, were passed through the machine, and came out the other end ready for folding together, and as rapidly as the attendant there could take them out of the way. I think all will agree that this was the first, and, perhaps, most important step in the direction of one-piece sections.

As sectional supers came more to the front in 1875 and following years, I, in the former year, having in my mind's eye the machine described above, could at once see its adaptability for turning out sections. Losing no time, I consulted an engineer in 1875, or the early part of the following year, and from other inquiries found it would be infringing the patent of Messrs. Colman, and was advised to let the matter drop.

However, not to be outdone, I made folding sections as follows:—The two ends and the top were six or eight inches wide, in these longitudinal saw-grooves were made every two inches, cutting through the wood within one-thirtieth of an inch, and when filled could be rapidly and easily subdivided into single sections, by simply running a penknife through the saw-groove. The bottom part of the ends were grooved to receive bottom rails, and being accurately made to drive in tightly, kept the section in position. The top and the upper part of the two ends were cut through at an angle of 45°, and on the outside, when lying out flat, end to end, a wide piece of tape was glued on, thus forming the joints corresponding to the thin part of wood left uncut in the V joints of sections as now made.

This, then, the first folding section ever made, was exhibited at the Kensington Show of the B.B.K.A. and was awarded first prize at least one season before the American one-piece section was heard of in this country; and I have no hesitation in adding that, could I legally have applied the above machine to section-making, they would have been perfected in this country without any assistance from our American friends. I think there can be no manner of doubt this was a step two in the same direction; and up to this time, as far as my knowledge goes, the Americans had done nothing whatever towards perfecting a folding section.

What has followed since the time my exhibit was awarded a first prize requires no explanation further than that the Americans have simply followed out the idea first invented by Messrs. Colman, adapted to section-making by me, and still further carried out and perfected by the Americans in one-piece sections of to-day.

In the face of these facts, I most emphatically contend that in no sense can the Americans claim to be the inventors of the sections in question. It must be highly gratifying to all English hive-makers, in the *Journal* of of the 9th December, to have such high authorities agreeing that our appliances are far more substantial and better made with us than they are in any part of America.

I note, and quite agree with your remark in the same issue, that the Americans have frequently taken ideas from us, which they do not credit us with, flagrant instances of which can be pointed out to this day.—JAMES LEE, *December 23rd.*

NEW BEE-SUBJUGATORS.

[756.] In your report of the Irish Bee-keepers' Association, on page 583, you tell us that 'Mr. Sproule handed round a bottle containing a substance mentioned in Mr. Cheshire's new book for rubbing on the hands to prevent the bees stinging while manipulating.' This was called methyl salicylate, but in Dublin was only known and sold as 'oil of winter-green.'

I have not seen the second volume of Mr. Cheshire's new book, in which this substance is named, for with the second volume I am wise by experience, having with his first volume patiently waited, month after month, for the separate parts, only to find the whole of the first volume published, whilst the monthly subscribers had arrived but halfway through. It is only fair to say that the publishers allowed me the cost of my monthly parts on returning them and purchasing the volume. I wanted to do the same with the second volume, but they didn't see the affair in my light, so I am impatiently waiting for the second volume complete.

As one who has taken some little interest in the true use of the bee's sting, I may be pardoned for having endeavoured for some time, by experiments, to discover a preventive against bees stinging, and this I have been doing until winter suspended my experiments, yet not before I had achieved success satisfactory to myself. I have, however, the greatest pleasure in hailing Mr. Cheshire as the discoverer of, perhaps, the most useful article in the apiary, and I feel sure your readers will thank him for generously presenting yet another discovery to the public.

Will you allow me now to say how far on the road I had gone (a different road but with the same goal); afterwards to make some new remarks on the discovery which will facilitate the making or obtaining it, and

also to acquaint our fraternity with another substance which I believe is equally efficacious?

On one occasion I had been attacked by bees on my hands, from which I could not remove the smell of petroleum, although it was not discernible to myself. I had tried two or three good washings with soap in vain, so determined, as they were so susceptible to its odour, to use vaseline (the jelly of petroleum) as the vehicle or basis of my lubricant, anticipating that when the bee came to *sample* the surface of skin (preparing for business) with its too highly sensitive palpi or feelers, placed near the sting aperture, she would find the adhesive and sticky slight film of vaseline, with which I had rubbed my hands, an unsuitable medium, besides rendering difficult the pincer-like purchase she obtains with her claws, by which to insert the sting. Scenting this substance successively with vanilla, vervain, bergamot, lavender, thyme, lemon, &c., separately, and in various combinations or chords; rubbing my hands with various herbs the essential oils of which, residing in the hairs of the leaves, were seized by the vaseline with which my hands were very slightly smeared, I had various degrees of success. We must bear in mind, *en passant*, that perfumes when skilfully mixed are capable of producing effects totally different from those of their separate components, that they may be tuned, so to speak, into harmonious chords or blends, just as the notes of musical instruments, or the colours on an artist's canvas may be so arranged as to produce an agreeable sensation upon the eye, the ear, or the nostrils.

> This is an Art
> Which does mend Nature: change it rather: but
> The Art itself is Nature.
>
> SHAKESPEARE.

We must also not forget that the slightness or intensity alone of almost every odour renders it agreeable or disagreeable to *us* (then how much more to the bee whose olfactories are susceptible to an incomprehensible degree). The scent of a crushed bee's poison in a hive arouses their anger, but the same chemical substance when 'like linked sweetness long drawn out' may be as agreeable and charming to them as the aroma of queen or home to a lost bee.

To resume; I came to the conclusion that any very slight soupçon of myrtle, olive, savin, bilberry, barberry, or dark green smooth-leafed scented sap evergreens produced very marked effects upon bees, to us favourable and the reverse, but this latter caused by intensity of the odour.

I might have wandered about long enough without 'striking it,' but you will admit I was very *warm*, as we used to say at the game of 'hide-and-seek,' very near *Gaultheria procumbens*, partridge-berry, tea-berry, or winter-green, of New Jersey, from which is extracted Gaultheria oil, or oil of winter-green, and new elixir. Any way I had got into the *family* when I was amongst the Ericaceæ, and I make no doubt that the whole family may be used as 'apifuges' (may I coin a word?), provided only that their scent be used weak enough.

Speaking theoretically (until spring comes), I have no hesitation in saying that essence of spiræa (meadow-sweet) 'will charm the angry insects down' equally with oil of winter-green. True oil of winter-green is very expensive, some 2s. per ounce, though, like charity, a little of it goes a long way. Being so expensive, however, it is well that readers of the *B.B.J.* should know that oil of winter-green and essence of spiræa may be produced artificially by chemistry. Many chemists even are not aware of this, and I am in communication with a manufacturing chemist respecting the cost of artificially manufacturing these two substances. I will let you know the result so as to facilitate the cheapening and obtaining of them, at present difficult. Meantime the following may be of interest:—

Salicylic acid + Wood ether } = Essential oil of winter-green or salicylate of oxide of methyle.

Salicine + Bichromite of potash + Sulphuric acid } = Essence of spiræa, or Salicylic acid, or Hyduret of salicyle.

Oil of winter-green gently heated with an excess of of potash, adding afterwards an acid, deposits salicylic acid.

Salicylate of oxide of ethyle $C_4H_5O + C_{14}H_5O_5$, when purified, has the same smell as the true oil of winter-green, imitated by methyl salicylate $C_2H_3O + C_{14}H_5O_5$, or $C\,H_3\,C_7\,H_5\,O_3$.

Now comes the strangest part of the business:—If methyl alcohol, or wood spirit, or hydrated oxide of methyl, be oxidised by means of a platinum wire heated to redness, and suspended in the same, the product is *formic acid* and water, the active ingredients in the bee-poison itself. Again, if salicyl aldehyde (syn. essence of spiræa or meadow-sweet) be oxidised, salicylic acid $C_7H_6O_3$ is formed, *our remedy for foul brood.*

We have, therefore, salicylic acid administered at the head of the bees as part of its food, and we have, alas! formic acid at the tail of the bee in its poison. Intermediate we have two apifuges (bee-tamers, subjugators, or what not), oil of winter-green and essence of spiræa, strongly-scented compounds of these two acids. I throw out the idea that bees will be *more irascible during feeding with salicylised syrup* than usual. Can we not now account for the beautiful scent we observe on opening some hives (especially demons), and also can we not account for the varying aromas of bees, by which they recognise their queen and co-inmates of the hive, and by which guide too they work peacefully in the dark?

In using any of these apifuges it will be well to remember that failure will show not that the remedy is wrong, but that we, the dispensers, have probably used too much of it.

Finally, I wish to tell your readers that Mr. Cheshire has opened a door by concentrating our attention on Gaultheria, and I shall be much mistaken if before long we find not only spiræa equally effective as a protectant against stings, but nearly, if not all, the carbo-hydrates, *the* volatile odoriferous essences of plants, such as bergamot, carraway, cassia, cloves, lavender, mint, rose, peppermint, thyme, lemon-grass, and even turpentine. I think we shall find the very slight rubbing of hands with any pure oil or vaseline, using not more than a pin's head size, afterwards brushing the hands carelessly through a lavender bush or scented herb bed, rubbing the hands together afterwards, will prove effective.—R. A. H. GRIMSHAW, *Crag Hill, Horsforth, near Leeds.*

PHYSIOLOGICAL QUERIES.—INVERTIBLE HIVES.

[756.] On the larva assuming the pupa form, has it ever been noticed its relative position in the cells when the comb is in its normal position as built by the bees? Will inversion be in any way detrimental to the brood? These questions seem to arise in connexion with the untried invertible hives, which I have no recollection of ever having seen alluded to, but which may, perhaps, be more curious than useful, and yet it is a point worthy of notice. Some of our leading *apiarists*, from constant study of the internal economy of the hive, may, perhaps, throw some light on the question, which I cannot help thinking will not only be interesting, but prove of some benefit also. I use the word 'untried' advisedly, and would add a caution to all but the skilled to take the advice of 'Amateur Expert'—to go slow; and, to emphasise the caution, would beg leave to refer to R. F. Holtermann's communication in the *Journal* of Dec. 9th reply

to a question at the late conference by Mr. D. A. Jones, one of the respected delegates of the Ontario Honey Exhibit; and to the writer of the very valuable series of 'Useful Hints,' from which it appears the Kansas and Western U.S.A. bee-keepers have, after a season's trial, thrown the system overboard. If the system of inverting is an aid to success, it will make headway; but to rush to such a conclusion before testing practically would be simple folly, and would lead many to give up bee-keeping in disgust.—JAMES LEE, *Dec. 29th.*

AMONG THE CARNIOLAN BEE-KEEPERS.

By THOMAS B. BLOW, F.L.S.

[758.] Whilst greatly obliged to Mr. Benton for the slight corrections he has made on my observations in Carniola, yet I take exception to some of his remarks, as all through the article I strove to state facts only as I found them, and about which I have no wish or intention to enter into controversy.

I stated no reason for the mixed colouring of the bees around Trieste, though I did form an opinion of the cause, which is not the same as Mr. Benton's opinion.

The block that Mr. Dokoupil uses I can assert, from my dealings with him, is a perfect success; so is the candy he makes and uses with it; and though I have only his word that he was successful in sending bees to America, yet I have no doubt whatever that he has done so, for all the bees I have ever had from him have arrived in splendid condition, so fresh that I should not have hesitated in sending them on to America. He has entirely discarded the use of comb-honey with his travelling-boxes, using nothing but candy, and I certainly am of opinion that he is the most advanced bee-keeper in his district.

I was quite aware that very large apiaries were to be found around Laibach, and I stated 'that the district around is a great one for bees.' I knew, too, of the large hive-factory referred to, and had the catalogue of its productions in my pocket all through my journey, but my object was bees rather than appliances, and I did not care to waste time in visiting it. I saw a number of frame and other hives of various patterns, but for one frame-hive I saw at least one hundred of the boxes I spoke of.

I am quite certain about the statement of Mr. Ambrozic. He said he had sent many queens to South America by the plan mentioned, and that the loss per cent of queens was not great. He mentioned that out of one lot of thirty queens, twenty-six arrived safely and in good condition, and the voyage was a long one, too. I am sure bee-keepers would be glad to hear of Mr. Benton's plan of sending forty queens a long journey safely in one stock. Is it a plan only, or has it been successfully practised? I must still stand firmly by my statement that Carniolan bees have not the restless tendency of other races when travelling, and this remark I apply to all other races. During my journey from Cyprus the bees I had with me never ceased to worry and gnaw at the wires that covered the openings in the boxes, and this caused great mortality. I shipped Eastern bees on to America from Cyprus for Mr. Benton, and these arrived here in just the same state, and more than half the bees were dead in each nucleus hive. The Italians have similar tendencies, though less decided than the Eastern races.

I have imported from Carniola during the past summer dozens of full stocks, and they have always arrived in the most tranquil condition and with hardly a dead bee.

I have the right, I believe, to speak with some authority on the suitability of the Eastern races of bees for this climate, as I have handled and had in my apiary a far larger number of stocks of these bees than any other individual in England. I have raised various crosses from them and studied them a great deal. It is hardly likely that I should quietly drop these bees if they had had any good qualities after the trouble and expense of taking a journey to Cyprus and Syria. I admit that the Cyprians are better than Syrians, but that is not saying much, and I now unhesitatingly condemn both for use here. They do not winter well, are very liable to dysentery, and to spring dwindling, and on an average season they will not produce as much honey as blacks. I do not make these assertions on the results of a single stock or season, but from many stocks extending over some years. Mr. Benton has had no experience whatever with these races in this country, and we must judge by results here. With regard to the question of their irritability and robbing tendencies, the less said the better. They have a reputation in this country that they will not readily lose.

As I stated before, I have no desire to enter into any controversy or to charge Mr. Benton with change of opinion (as I changed my opinion of Cyprians after a year or two experience with them), but if we read his early experiences with Syrians they were then far ahead of all others, and now are despised. I do trust that Mr. Benton will abandon his profitless yearly Eastern expedition, and settle in Carniola, where there is great need of a scientific queen-raiser such as he, and I can assure him that he will have an unlimited demand for all the queens he may raise there, as no better bees can be had and none more suitable for our climate.

NOMENCLATURE.

[759.] I should think about the last thing you need have done in a recent number was to deprecate the giving up of the *Journal* by any one whom depressed apiculture did not prevent continuing it, or to offer any 'excuse' for writing discursively on topics of general interest. To myself they were all very interesting, and I was glad to meet with the derivation of 'topsy-turvy' in a paragraph relating to a matter on which I had intended to write to you. As we shall soon begin a new year let us by all means start, if possible, with correct nomenclature. This was advocated some months ago in the matter of crates and racks, dividers and dummies, &c. I quite agree with you about the use of the words 'reverse' and 'invert,' but I am not sure that I agree with any one as to the sense of practising the plan indicated. What do the bees think of it, I wonder? Has any one tried the effect of an entrance at top of front of hive, with suitable arrangements for movement inside? Would the bees put the whole arrangement 'top-side-t'other-way?'

But nomenclature. I don't know why we *have* no right to use *apiarian* as a substantive. Such a practice is common enough with moderns and the man who wrote '*Eheu*,' &c. But as I was once denominated an *aparian*, or, if it must be written, *apearian*, why I go in for *apiarist*.

But I have not got to my object yet. It does not much matter whether we call the article which holds the sections a crate or a rack, but I think a serious error is being made in the use of the word 'rabbet.' We could not on any ground call a bottle a cork, but something similar to this is being done. You have copied it from Neighbour's advertisement of the Sandringham hive in which we read of shifting rabbets, and see that they are oblong pieces of wood which slip up and down in grooves. Now, surely it is the groove which *may* be called the rabbet, and not that which slides in it. One dictionary tells me that a rabbet is 'a joint in carpentery, a groove;' while the *Glossary of Architecture* informs me that it is 'a rectangular recess or groove cut in a piece of timber to receive the edge of a plank.' Here at the edge it is no doubt most correctly spoken of, but I do not object to the use of the word by accommodation

elsewhere, only we ought certainly to keep the term for the hollowed space, and not for that which fills it. This is topsy-turvy work with a vengeance, and much of it would prevent our communicating intelligibly with one another. The fact is that 'rabbet' is a corruption of 'rebate,' something bated or beaten back, a term used in knitting, and a good example of a rabbet is the notch cut in a door-post to receive the door.—C. R. S., *South Cornwall, December 20th*, 1886.

SUNDRIES.

[760.] Our friend Simmins—and all bee-keepers ought to consider him as such—seems to have been somewhat 'riled' at 'A. H. B. K.'s remarks anent queen introduction, and well he might. But hard words, you know, take a long time to smooth down again, while nothing is gained by using them. 'A. H. B. K.'s 'law' is sound and practicable, but Simmins's is better, not in its efficiency, but in its simplicity. I have had considerable experience in both during the last season, and have been eminently successful with each. But who would go to the trouble, in the middle of the season, to deprive a stock of every means of raising a new mother, when by simply keeping your fresh queen in a receptacle by itself for half an hour the thing is done? Here you only handle one bee, but to deprive a populous colony of eggs and young brood at such a time, why, it will not bear comparison. Your stock must be queenless for forty-eight hours, according to 'A. H. B. K.,' Simmins less than a quarter of the time. As to the success of each, they are about equal; neither Mr. Simmins's plan nor 'A. H. B. K.'s' are infallible, but both are near enough to infallibility to be considered a great success. Queen-cages must be at a discount; a very considerable one too. I would not give 'tuppence' for a bushel.

One colony of bees, occupying two skeps, standing side by side, as seen by 'Engine-driver,' was observed by myself, and noticed some two years ago in *B.B.J.*

Our American friends are 'going in' for Mr. Cheshire's 'foul-brood' cure, and according to their experience there is nothing to beat it. I daresay they would have discovered this before if it had been an American that had introduced it.

Professor A. J. Cook has discovered that coffee is about as pernicious to bacteria as water would be.

Fancy a County Association giving up the circulation of the *Bee Journal* in the place of the county expert! They say opinions differ. I should hardly think that the opinions of its members had been consulted at all.

What must we store our honey in? Mr. O. Hehner tells of elder-wine becoming poisonous by being stored in galvanised receptacles, and honey will be so affected. I know an instance of a family being poisoned by elder-wine stored in red glazed crocks. Perhaps we had better not store honey in these likewise. We must stick to tin, it is far more preferable, if only for its cleanliness.

Honey at 1*d.* per pound net is the future price when 'S. L. B.'s' Mexicans are introduced. Why, bee-keeping then will lose half its pleasures (?). No more gloves, no more veils, but what a glorious time for the bees that *do* sting! Mexicans will collect, Ligurians, Blacks, &c., will store, and we—well, it will be too common to eat honey then.—W. B. Webster.

NOTICES TO CORRESPONDENTS & INQUIRERS.

E. W. P.—*Separating Pollen from Wax.*—Melt the wax, and keep it just melted, but not boiling, for five or six hours, then let it cool, and the separation will then be found to have taken place.

J. C. Merrick.—*Packing Honey for Transport.*—Please refer to page 303 of previous volume, where you will find full and clear directions for packing honey. The directions referred to were issued by the Irish and other bee-keepers' Associations.

Business Directory.

For the use of Manufacturers and Purchasers of Bee-keeping Appliances.

The Name and Address and Business of any Manufacturer will be inserted in this List, under one heading, for One Pound per annum. Additional headings, Five Shillings extra. Advertisers in 'The Bee Journal,' whose orders amount to Five Pounds per annum, will be inserted Free.

HIVES AND OTHER APPLIANCES.

Abbott Bros., Southall, London.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
Burtt, E. J., Stroud Road, Gloucester.
Edey & Son, St. Neots.
Hole, J. R. W., Tarrington, Ledbury.
Howard, J. H., Holme, Peterborough.
Meadows, W. P., Syston, Leicester.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
Stothard, G., Welwyn, Herts.
The British Bee-keepers' Stores, 23 Cornhill, London, E.C.
Walton, E. C., Muskham, Newark.
Wren & Son, 139 High Street, Lowestoft.

HONEY MERCHANTS.

Abbott Bros., Southall, London.
Baldwin, S. J., Bromley, Kent.
British Honey Co., Limited, 17 King William St., Strand.
Country Honey Supply, 23 Cornhill, E.C.
Howard, J. H., Holme, Peterborough.
Neighbour & Sons, 149 Regent St. & 127 High Holborn
Walton, E. C., Muskham, Newark.

FOREIGN BEES AND QUEENS.

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[No. 238. VOL. XV.] JANUARY 13, 1887. [PUBLISHED WEEKLY.]

Editorial, Notices, &c.

HOW TO MAKE AN EXTRACTOR.

We have been frequently asked to give instructions for making an extractor. Although we do not think that it will generally pay an amateur to make one for himself, yet there are those who like to make all their own appliances, and for these we intend to comply with the request, and to give such details as may enable any one who understands working in tin to accomplish his object.

For this purpose we will select the simplest form of cylinder extractor, that known as 'Cowan's Amateur,' which has been the type for most of the extractors made since its introduction in 1875.

In our experiments on extractors, commencing in 1873, we made no less than thirteen different patterns, and by constant trial and alterations were able to decide on the best forms. Extractors were tried with four and six frames, but we found these as unsatisfactory as Mr. Root, who says in his *A B C of Bee-culture*:—'Experiments have been made almost without number, and the general decision now seems to be in favour of a machine made entirely of metal, with everything stationary about it except what *must* be revolved. The momentum of heavy metal revolving cans, or of honey after it has left the comb, defeats the very object we have in view; and nothing will so effectually convince one of the difference as an actual trial of the two machines side by side. With the light all metal machines the comb is revolved at the speed required almost instantly, and as soon as the honey is all out of the comb the operator is aware of it, by the decrease in the weight as he holds the crank in his hand; but with the heavy, unwieldy machines the stopping and starting take more time than doing the work. The same objections apply to making machines for emptying four combs at once. They require to be made much larger, and are correspondingly heavy and unwieldy.'

After trying extractors with revolving cans we found them so unsatisfactory that they were also given up. Experiment also enabled us to decide the distance the combs should be from the spindles; and this is of great importance, because if the combs are too near, as in some extractors we have seen, all the honey is not extracted; and although it may be convenient to have a can as small as possible in diameter, yet there is a limit to the minimum size for securing efficiency. In experimenting many hundred combs were extracted and carefully weighed, the bees allowed to clean them, after which they were again weighed. The difference in the weights enabled us to determine the amount of loss in honey, and by this means we were enabled to arrive at the most suitable measurements.

Before proceeding we must here remark that no zinc or galvanised iron should on any account be used for extractors, or for any utensils for the reception of honey. The acid in the honey acts upon the zinc, and the oxide of zinc quickly poisons the honey. The same applies to galvanised iron, as the galvanising, as it is called, is only a coating of zinc. Nothing but tin or tinned iron should be used, and all iron parts coming in contact with honey should be tinned. We have always strongly insisted upon this, and have several times given our reasons for it in the *Bee Journal*.

The illustrations, will, we hope, assist in better understanding the construction of one of these extractors.

As we have a standard frame we will give dimensions suitable for this frame, and anyone having another size will have to alter the proportions to suit it.

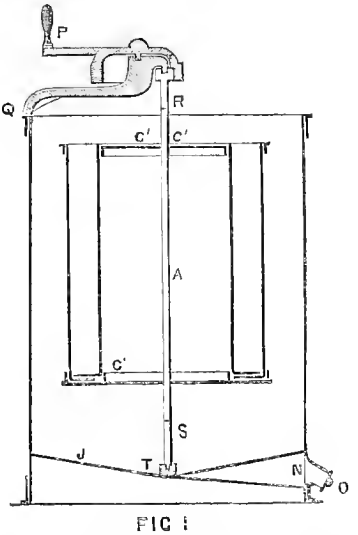

FIG 1

Fig. 1 gives a vertical section of the extractor, and fig. 2 is a horizontal section through the comb baskets.

We will commence by making the spindle and frame. The spindle A is made by rolling up a piece of tin, and making a tube $\frac{5}{8}$ of an inch in diameter. It will next be necessary to make the grooves for the cages to slide in, and these will also form the uprights at the angles B. Cut four pieces of tin 15½ inches long and 3¼ inches wide, fold a seam along the two edges ¼ of an inch wide, then turn these up at right angles ¼ of an inch, and we shall get a trough in section like this ⌐¬. At one end cut the corner, and turn up the edge ½ an inch thus ⌐¬, as this will have to be placed to

the bottom, and form the ledge for the comb baskets to rest upon.

The frame for keeping these together, C C C′ C′, fig. 2,

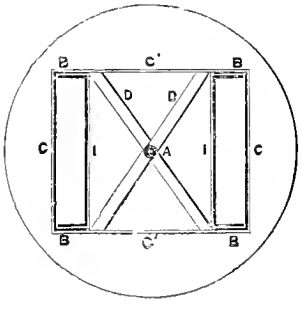

FIG 2

being 12 × 10 inches, we shall want strips of tin $1\frac{3}{4}$ inches wide with a seam folded on one edge $\frac{1}{4}$ of an inch wide and an $\frac{1}{8}$ of an inch wire folded in the other edge. These strips must be bent at right angles, so that when they are soldered together they may form two square bands 12 × 10 inches. Fig. 3 will show the arrangement of these at the top and bottom of the framework. The four uprights can now be soldered on to these bands. Place one of these with the wired edge down, and with a little solder tack the uprights in their proper position. It will be noticed, by referring to fig. 2, that they have to be fixed to the long sides, C C, taking care that the piece turned up at the end of the slides is at the bottom. Now tack on the top band to the upper ends of these slides, with the wired edge uppermost. Be careful before finally soldering that everything is perfectly square, or the cages will not slide in properly. When it is found correct the whole framework can be laid down in a position most suitable for finally soldering all together. On the two narrow sides solder two brace wires diagonally from the opposite corners, as shown in fig. 3. One will lay flat against the wire cage when it is in position, and the other to complete the X will have to be bent where the two wires intersect, so as to make it also lay flat. If these wires be $\frac{1}{8}$ of an inch thick and are well soldered at the ends and at the place of intersection they will be amply strong enough to prevent any bulging, even with the heaviest combs in the baskets. For fixing the spindle to this frame we must make two pieces, D D, in the form of an X. These can be made of strips of tin $1\frac{5}{8}$ inches wide, with wire folded in the edges for strength, or, if the wire is not used, the tin should be a little wider and folded three times. They should be when finished not less than $1\frac{1}{8}$ inches wide. Fix them as shown in fig. 2, and solder them where they cross. Then bore a $\frac{5}{8}$ inch hole in the centre of each, and push through the spindle, which must be firmly soldered in its place.

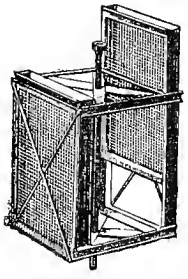

Fig. 3.

We will now make the comb baskets or cages. These are in two halves, and are made two inches wide inside, so as to take combs of any thickness and sections, if it be desired to extract the honey from them.

The wire cloth used for the purpose, fig. 4, is made of stiff tinned wire four to five meshes to the inch. Two pieces are required 15 × $9\frac{1}{2}$ inches and two pieces 15 × $9\frac{1}{4}$ inches. Get a strip of tin long enough to go right round the edges E E $\frac{3}{4}$ of an inch wide and turn it up at right angles, thus ⌊ ⌋ now place the wire cloth inside this and solder it in, being very careful to solder each wire. Next hammer down the turned-up edges flat on to the wire and again solder each wire to these. They will then present the appearance of fig. 4. We now have to make frames for them. The frames, however, have only two sides and a bottom. Tin $2\frac{1}{8}$ inches wide will do and turn up one edge at right angles for $\frac{1}{4}$ of an inch. Then bend them thus ⌊ the long ends F F, fig. 5, being when finished 15 inches and the short one G $9\frac{5}{8}$ inches for two of them, and the other two must be a little smaller so as to fit into these. We say when finished because we intend to turn in a bead with a wire to strengthen the top and give something to take hold of. The wire-cloth frame, fig. 4, can now be soldered into these frames, and we shall have half a cage as seen in fig. 5, which shows a frame of comb in position. We then put a wire along the top H H, turning the tin over it and soldering the wire to the top end of the tin surrounding the wire cloth. The inner basket which has to fit into the outer one need only have the wire fixed along the top on that side where is placed the wire cloth, as it would be obviously in the way if it were also at the ends. The baskets when put together are seen in fig. 6. Should the frames have projecting shoulders, or long ends, holes must be cut in the bottom of the cages or in the wire cloth to accommodate them.

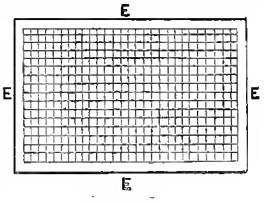

Fig. 4.

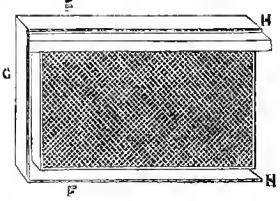

Fig. 5.

The advantage of these baskets is that any thickness of comb can be put in for extraction. Pieces either from skeps or other hives can also be very easily put in by opening the cages. Combs containing brood can also be laid in without damaging them, although we do not recommend any but the experienced to extract from such combs. The combs can also be reversed without touching the frames by merely drawing out and turning the cages. Fig. 3 shows one pair of cages in position and the other being withdrawn. We prefer having a piece of folded tin, I I, fig. 2, fixed across where the crosses end, and this prevents any springing at the corners.

FIG 6

The can has to be made 18 inches in diameter and 24 inches high. The top and bottom must have a wired bead and against it a strong hoop at least one inch wide and of $\frac{3}{16}$ inch wrought-iron. This may be riveted on to the can. There is no difficulty in making any part of the can except the conical bottom, J, fig. 1. For this cut a circular piece, as in fig. 7. It must be 19

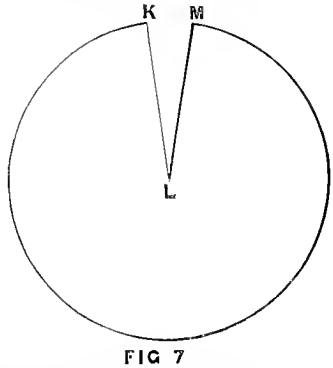

FIG 7

inches in diameter and a piece K L M must be cut out of it as shown, $2\frac{1}{4}$ inches wide at K M. Turn up the edges K L, M L half an inch in width and draw the opening together. It will then present the form of fig. 8. Tack on

temporarily a piece of tin across the opening to keep it the right distance apart. Then turn down the edge all

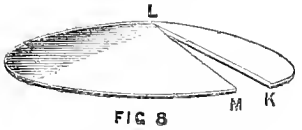

FIG 8

round the circumference, and try this bottom in the can, and if it is too tight or too loose untack the strip of tin across the opening and fix it in the right place. The bottom can now be laid down and a trough-shaped piece, fig. 9, soldered over the opening on the turned up edges K L, M L. This must be cut a little larger than the wedged-shaped piece cut out of the bottom, and will form the channel leading towards the honey valve. The bottom can then be soldered from the inside into position as shown in fig. 1. Then punch a hole at N and solder in the honey valve O. Before proceeding any further test the can by pouring water into it, and if it leaks remedy the defects.

FIG 9

The tin work is now ready, and we have only to put the machine together and put on the gearing. The amateur had better purchase the gearing P and honey valve O, as it will be cheaper for him to do so than to make them. The bracket Q has to be screwed on to the can and the small gear wheel, which has a short length of iron rod R attached to it, is soldered into the top end of the hollow tin shaft into which it fits. A plain piece, S, carefully tinned, is soldered on the bottom, and this must work in a bearing T fixed to the bottom of the can, as shown in fig. 1.

Should the bee-keeper prefer it, he can substitute for the gearing a cranked handle at the top end of the shaft, this being kept in its place by a wrought-iron bar placed across the can and screwed to it, but he must not expect the same speed with this as with the multiplying gear, nor does it work so smoothly or evenly. These extractors are also made with an extra can below them: and in this case they have no conical bottom, but instead there is a bar of flat iron for the bottom of the spindle to work upon. The bottom of the extractor is made to fit in the top of the can and a wire gauze screen is used through which the honey is strained. Of course if such a can is used to hold about 50 lbs., both the conical bottom and the honey valve must be fitted into it instead of into the body of the extractor.

We hope that the description as well as the illustrations will be sufficiently clear to enable the amateur to make his own extractor.

BRITISH BEE-KEEPERS' ASSOCIATION.

The next Quarterly Conversazione will be held at 105 Jermyn Street, London, S.W., on Wednesday, January 19th, commencing at six o'clock. Mr. R. A. Grimshaw, of Horsforth, near Leeds, has kindly promised to read a short paper on 'The Vocal Organs of Bees.' The Secretary will be glad to receive notice of additional subjects for discussion from other members.

The annual general meeting of the members will be held at 105 Jermyn Street, S.W., on Wednesday, February 16th, at 3.30 p.m. The chair will be taken by the Baroness Burdett-Coutts, President of the Association. Notices of motion for this meeting should reach the Secretary not later than Monday, January 31st.

Foreign.

CANADA.

Our bees are once more in their winter quarters, and bee-keepers have a season of comparative leisure before them.

Our methods of wintering in Canada are various. A few, but I think none, of our most advanced bee-keepers winter their colonies upon their summer stands without any further protection than the summer hive. It appears in the past, when the old box-hive was still the prevailing, if not altogether *the* hive in use, colonies were always wintered in this manner, and our fathers state winter losses were rarely heard of. It may be that the shelter at that time afforded by our forests aided them, and the increased manipulation of the bees, close extracting, &c., interfere with successful wintering now. Certain it is that forty years ago great winter losses amongst bees in Canada were rare.

Two great methods of wintering bees are resorted to by Canadian bee-keepers, they are wintering in repositories and outdoor wintering in clamps or their equivalent. Repositories are either specially made for the purpose, or consist of cellars under dwelling-houses, which have originally been built for household purposes and are often used by the bee-keeper for both. Repositories specially constructed, are either houses double-walled and packed with sawdust between, making them frost-proof cellars, generally with a workshop above; these repositories are ventilated in various ways, the houses generally have sub-earth ventilation by means of a tile pipe, running a sufficient length and depth under the soil, to enable the atmosphere passing into it from the end remote from the bee-house to be of an equal temperature by the time it enters the bee-house at the other end, and this irrespective of the rise and fall of the temperature outside. A pipe, often a wooden box, generally forms the other and upwards ventilator, and this ventilator can be opened or contracted to further regulate the temperature of the repository.

The colonies are placed at least twelve inches above the floor, and piled one above another with the lids off, and the propolised cloths on; sometimes the latter are replaced by clean cotton and a light chaff-cushion. Opinions vary as to the temperature of the repository; all agree it should never fall below 35° or even 40°. The tendency has been for the last year or two to raise the temperature in wintering, and in consequence many favour a temperature not lower than 50° to 55°.

Bees are generally placed in these quarters the latter part of November, and remain there until the bees can gather pollen and natural stores. Some will carry their bees out during early spring for a cleansing flight, and return them to the repository; such a method is very generally condemned. Towards spring the temperature is raised, and the bees commence brood-rearing, and all conditions being favourable when placed upon their summer stands are almost quite as strong, or even stronger than when placed indoors.

When wintering outside in clamps, the hives have an outer case, allowing sufficient packing of chaff or sawdust to keep out the frost, the lid is removed, passages bored through the upper half of the combs so as to permit the bees to pass from comb to comb without going around them (this prevents much loss), on the top bars of frames are placed strips to raise the cloth sufficiently to permit the bees to pass from comb to comb over the frames. The entrance is left open to allow the bees a flight when desired. We have a number of reports where hives were left covered entirely with snow for some time, and wintered well. We have also reports of colonies, which, buried in a dry soil over winter, and coming out in fine condition; but such practices are

exceptional as yet, however satisfactory the results may prove to be. It is generally admitted that bees wintered on their summer stands and packed about with chaff and sawdust during the cold winter and spring, are less liable to spring-dwindling, and build up in good condition for the early honey flow.—R. F. HOLTERMANN, *Brantford, Canada.*

SWITZERLAND.

In passing a retrospective glance upon the main features of the year which has just closed from a bee-keeper's point of view, the *Bulletin d'Apiculture de la Suisse Normande* arrives at the conclusion that in Europe it has proved exceptionally unfavonrable to apiculture.

In the course of its twelve months, adds the same Journal, the losses of prominent members of our community have been very severe. Switzerland deplores, among others, the removal by death, of M. Mona; Italy, Mr. C. Fumagalli, the author of a hive largely in use among Italians; France, M. Jules Madaré, President of the Société de la Somme, and M. Maurice Girard, a distinguished entomologist and author of a valuable book on bees; Scotland has lost her James Anderson, a veteran of Scotch apiculture, who in his day was remarkably successful with the Stewarton hive; and, lastly, Russia has seen the passing away of Dr. A. Butlerow, Professor of Chemistry and of Medicine at the St. Petersburg University. Dr. Butlerow was the promoter of modern bee-keeping in Russia, and his works are considerable, among which is a Russian translation of Berlepsch's book. The deceased doctor was also founder of a school of apiculture.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Upper St. Martin's Lane, London, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *King's Langley, Herts (see 2nd page of Advertisements)*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

SIMPLICITY IN FEEDING.

[761.] At one time I looked upon the work of feeding in large apiaries as one of the greatest annoyances, and the necessary preparation a waste of valuable time. Syrup had to be made over a stove before it was thought possible that it could be appropriated by the bees. I was satisfied that all this labour could be avoided, and before establishing out-apiaries I determined, if possible, that it should be done. The result of careful experiments was the present system known as 'dry-sugar feeding,' by means of dummies filled and arranged at the side of the brood-nest. Though the term applied to the new process was not exactly correct, as the sugar used (Porto Rico) is moist and soft, it is thus distinguished from syrup feeding, and appears appropriate.

Though invaluable for stimulative purposes, and in some cases to complete storage, at times it was still necessary to give syrup, when desirable, to feed rapidly, but this difficulty has been overcome by my self-acting syrup feeders. There was still, however, one other point to be overcome.

Many stocks are either neglected by their owner, or happen to run short of food before it is possible to feed in the ordinary way. Hence the use of 'candy' during winter, than which there is no more troublesome nor expensive food to make; expensive because of the great waste of time taken in its manufacture when one might be profitably employed at something far more remunerative.

It is pretty well understood by practical bee-keepers that the only suitable candy is that which always presents a moist surface to the bees, without wasting too freely, great care being required to get it just right, as, if too dry, the bees will not make much use of it until they can obtain water, while if too soft the whole will run away in waste, making everything sticky, the poor bees included, and thus doing more harm than good.

When I say that I have struck the 'happy medium,' and no more cooking is required, even for winter-feeding, or for supplementing the stores of those running short before spring opens, the importance of the following plan of giving uncooked sugar without the expense of a feeder will be acknowledged. Porto Rico sugar is of exactly the right condition to take the place of candy, if only properly applied. There is only one way that I have found it can be done without waste where the bees are admitted to the sugar from the bottom of the lump, and that is, when placed *on the frames* just over the cluster, and *pressed down tightly.*

First lay a sheet of newspaper over the frames, on this place several pounds of the above-mentioned sugar and press it down well all round. It then forms into a cake with a crust that I have known to support the weight of clustering bees and newly-built combs, after the bulk had been used in spring, just as if it had been an inverted dish. No grains are wasted; first, because of the pressure, and then the moisture of the hive causing all to adhere closely together. No liquid appears, and yet the sugar is always in the best possible condition for use. The body of sugar adds an additional protection to the bees, and, unlike sticks of candy, the crust is left till last, forming a complete air-chamber immediately above the cluster.

A strong colony will soon open a way through the paper where it bulges down between the frames. For a weak lot a slight tear should be made to give them a start. Instead of paper a piece of cheese-cloth can be placed first on the frame, and would be preferable if applied in mid-winter.

It is hardly necessary to say that this sugar can be moulded to any shape to suit the formation of roof or quilting, which latter should be very warm. For slow feeding, where it is known the bees have some stores on hand, or for brood stimulation later, porous cloth only need be applied; but where the case is urgent, or more rapid feeding is necessary, place a piece of oiled cloth next above the sugar, with smooth side to the same.

In cases of emergency, where bees have been bought in spring short of food, and being in odd hives, I have placed the usual dry-feeding dummy close on top of the frames, with the slot next to but standing across them. The hives being smaller than the 'standard,' no other feeders were at hand suitable. When covered up warm the sugar soon disappeared, and though side feeding is at times more convenient to the bee-keeper, without a doubt in cool weather, there is no place so suitable for the bees wherefrom to take their food as that immediately above the cluster.

I do not suppose every one will discontinue the preparation of bee-food by cooking, but at my own apiaries, of several hundred colonies, no time is now wasted in that manner, and I have no doubt this last application of 'dry-sugar feeding' will be welcomed by many who are now getting anxious about the condition of their stocks.—S. SIMMINS.

CAMPHOR AS A CURE OF FOUL BROOD.

[762.] I think we may safely come to the conclusion that camphor is useless as a cure of foul brood, as no one in reply to my Query 674 writes in its favour, and two write against it. I certainly expected to see some

one write in its favour, after its being recommended in the *Journal* by you, Mr. Editor, although you did not write from your own experience; and if report is correct our County Expert carried a stock of camphor with him on his tour, so as to supply any one with it where they had got foul brood. But in one apiary where he recommended its use, it did about as much good as it did in mine.

In reply to Mr. Ward, How are we to know when the disease has attacked the queen so as to displace her? If I was not certain about the queen I mentioned in my previous letter, I certainly should not have any faith in any other, as I had the pleasure of driving the bees this autumn at the same apiary she came from, and there is no trace of foul brood there at that time, and I don't believe there is within three miles of them.

He also says if the queen is healthy, the so-called Cheshire cure will cure a hive: my experience says it won't. When I first found out that I had got foul brood, I at once sent to one of his recognised agents for some, so as to have the right article, and I carried out his instructions as near to the letter as I possibly could upon the two hives that were affected, but to no purpose. I reduced it to about four times the strength he recommends, and then they would not take it. I then tried spraying the combs with it, but they gradually got worse, and at last I turned them out and put them into a clean hive, and before I would go through that process of spraying, &c., again, I should give up bee-keeping. I certainly mean trying one of his recommendations in the spring as regards putting some medicated syrup out for them to steal, and if it answers I will publish it in our *Journal*. Of one thing I feel certain, that there is no occasion to destroy your hives; that they can be disinfected. Three years ago I sold six hives for a gentleman who makes his own hives, and who was adopting the standard frame, these not being standard size. Knowing that he had got foul brood, I did not like to have any dealings with him (and if I had known as much about foul brood then as I do now I certainly should not), but he assured me that they had been disinfected, and that there was nothing infectious about them; they had all had bees in them and died out.

I did not feel very easy about their coming upon my premises, so that I moved them as near direct as possible. Three went to one place, and the other three went to separate places, and they are not near one another by at least two miles. I examined the whole of these hives last autumn, and there is not a trace of foul brood in either of them; so that the gentleman was candid in saying they had been thoroughly disinfected. Further, I don't think it is communicated in wax-foundation, as I have supplied these four parties with foundation bought through the *Journal*, and they have now amongst them more than a score of bar-frame hives all clean.

I think Mr. Saddler has done us a good turn in publishing his experience of foul brood. I quite agree with him that the simplest way of dealing with foul brood is to destroy the affected combs. I tried putting clean combs into the centre of the brood-nest whilst feeding with salicylic acid, but after about the ninth day they took the disease as bad as the others. He quite bears out my opinion that you may have the disease very bad in a hive, and yet the queen is not affected. Mr. Ward will say how do I know that. Just one instance. Two years ago a stock of Ligurians belonging to the gentleman I have previously mentioned, had got it very bad; he shook them off the bars into a straw skep, intending to keep them there for a couple of days, before putting them into another frame-hive, but not agreeing with the change they took flight, and went straight into the weather tileing of a gentleman's stable about half a mile off. As they had become such an intolerable nuisance there, I was asked to come and take them out, which I did in September last, and there was not the least sign of foul brood anywhere; and there was no mistaking the Ligurian bees and the old queen: they had one unbroken piece of comb over five feet long.

I should like to see 'Knownothing' give us his recipe for using Calvert's No. 4, as I consider 1*s.* 6*d.* per bottle for such a small bottle as Mr. Cheshire's agents send out is far too dear, and then carbolic can be bought almost anywhere.

I am sorry that I cannot endorse your opinion of Mr. King's article on Foul Brood. It appears to me to be a rare piece of Yankeeism. He puts one small measure of the dissolved phenol crystals into a pail, and measures with the same measure 499 parts of what I may call syrup, and then makes a mark upon the pail, so as to have a correct measure. I should call that anything but a correct measure. Only fancy filling this small measure 499 times, and I cannot make anything else of it! The odds are if he tried it over half-a-dozen times, he would not make his measurements agree within half a pint on either occasion of trying. If he had quoted ounces or pints, I think any one could have understood it. And then when heated up to 150° Fahr. the bees would eat it with avidity. Let him try drinking his coffee heated up to that heat, and see how fast he could get on. And I have yet to learn that bees can take anything hotter than we bipeds can.

And then he wants us to believe upon hearsay evidence that he has cured his large apiary of foul brood in less than twelve months by using phenol, according to his formula, not Mr. Cheshire's.

I should imagine that the manager of an apiary of 400 hives would be able to carry out Mr. Cheshire's instructions fairly well. And yet Mr. King says that in the experiments made with phenol previous to his taking them in hand, the solution had been used too strong, too sparingly, not half sweet enough, nor yet warm enough. And then to finish up, asks all that are interested to carry out Mr. Cheshire's formula literally and accurately. That last sentence has put me into a fog altogether.

It seems to be admitted by all your correspondents that the Cheshire formula is too strong, and that bees won't take enough of it to do them any good until it is reduced. 'Knownothing' says I am quite right in supposing that the disease is not propagated readily in a neighbourhood. I don't know when I said so: at least, my opinion is quite the reverse, but there is something peculiar about straw skeps and foul brood, of which more anon.—Man of Kent.

P.S.—Will 'Platelayer' give us his experience of the last season, and whether his bottle of phenol is still on the shelf?

[We do not think we can yet come to the conclusion that camphor is useless as a cure for foul brood unless we disbelieve the statements that are constantly made by competent bee-keepers of complete cures by its means. We know it has not been successful in some cases, but we have no personal experience, having fortunately succeeded perfectly well with salicylic acid when foul brood was raging fearfully in our own apiary. However, we see frequent reports of cures effected by means of camphor in the leading Continental bee-papers. We attended a large meeting of the Société Romande d'Apiculture last October, and there met a gentleman who had successfully cured his hives with nothing but camphor. We have also heard of others who had succeeded with phenol, and even with common carbolic acid, as recommended in some German bee-books. In 1885 we attended a meeting of the Italian bee-keepers, when this question of phenol treatment was discussed. It was not favourably entertained; M. Tartuferi, one of the largest bee-keepers in Italy, and owner of a thousand hives, stating that he did

not want anything better or simpler than salicylic acid, having had no difficulty in curing his hives with it. Both salicylic and phenol have now been in use for upwards of ten years, and both have their advocates. We must, however, admit that although we have seen large apiaries that had been completely cured with the former, Mr. King's is the only wholesale treatment with phenol we have heard of, and hope it may be as successful as he states. It is true we have never detected any of the germs of foul brood in honey under the microscope, even with the highest powers; but it has not, we think, been conclusively proved that the virus of the disease may not be conveyed in it, and your experience, borne out by that of others, is strong evidence in favour of the theory that honey may be the medium through which foul brood may be promulgated. Pure phenol in crystals can be purchased at 3*s.* a pound. There is no difficulty in making the solutions, see page 153, *Bee-keeper's Guide Book*, where the proportions are given.—Ed.]

MR. CORNEIL'S SECTION CRATE AND SECTIONS.—AN APOLOGY.

[763.] Having noticed 'Amateur Expert's' apology to Mr. W. Chitty in your last issue, I felt interested to examine both the original paper in the *Bazaar* and also the criticism. Referring to these, may I venture to say, in the first place, that while it is always pleasing to see a writer willing to apologise for any offence, real or imagined, that he may have caused, I quite fail in this case to see how any reasonable person could have taken offence? In the first paragraph relating to Mr. Chitty's paper, 'Amateur Expert' points out, but certainly not in an offensive manner, an error, which if uncorrected might have led many bee-keepers to spoil all their sections next year. Had I made such a mistake I should have felt grateful to anyone who set me right.

The next paragraph appears to call for no comment; and the same applies to the first part of the third: but if Mr. Chitty chooses to 'fit on the cap' as to misleading instruction in gardening and other journals—in which undoubtedly from time to time much that is misleading has appeared—I do not see that he need complain of unfriendly criticism. Had he complained that 'Amateur Expert' wrote under cover of a *nom de plume* instead of boldly signing his own name, I should fully sympathise with him.—J. Lingen Seager.

SUNDRIES.

[764.] Having made a few new hives this winter, and being rather fond of having names for some of them, I should like to have one named *Mel sapit Omnia*, but as I fear being a cause of offence to 'Amateur Expert,' I should like to get his permission to have it done, as in the *Journal* for Sept. 2nd, page 408, he threatens pains and penalties to anyone infringing his trade-mark. By the bye, I was wondering what had become of him, thinking perhaps he was hybernating, like the bees; but it appears in our last, a fitful gleam of sunshine fetched him out, but only to reply to Mr. Chitty, and apologise, —for what?—what I think was a justifiable action in pointing out some discrepancies in his (Mr. Chitty's) description of Mr. Corneil's super? I hope we shall soon hear from him again, as we cannot afford to lose his racy, piquant articles which enliven all around, also his remarks and experiences have been very instructive. I hope he will not forget to give us his experience with bees that are bred from that Cyprian or Holy Land queen which he introduced last autumn.

I should like to say a few words about the Standard frame. I think it is a pity after all the trouble and bother of settling on a certain size, that a few are thinking and advocating changing, what to me appears a very suitable size. If any alteration is deemed advisable, I should think shallow frames would be the most suitable, like those advocated in the *Record* by Mr. Carr, as at the late South Kensington show we had a specimen of what could be done with such a hive in a moderate season.—John Walton.

A ROMAN RELIC.

[765.] In 1868, a gentleman of Colchester (Mr. Joslin) found in his grounds a monument to a Roman soldier (centurion). An interesting description of it was written by the Rev. B. Lodge. A doubt arose as to the name, &c., of a small sword or hanger at the right side of the figure. And in a note we read that Forcellini, quoting Antonius Augustinus, says that the weapon was without a point, to intimate that the superior officer, like the queen-bee, should direct, but have no sting.

Can any of your classical readers tell us anything about Antonius Augustinus, date, &c.?—J. Lawson Sisson.

[In 1587, Antonius Augustinus (or Antonio Agustin), archbishop of Tarragona, published a work, entitled, '*Dialogos de Medallas, Inscriciones, y otras Antiguedades*. Ex Bibliotheca A. A. Plates, 4to. Tarragona, 1587.' There was another edition in 4to., Madrid, 1744. Of the above work there were two Italian versions. Also a Latin translation by And. Schott, Fol. Antverpiæ, 1617, and Antv. 1653-54, 3 parts, 68 plates.—Ed.]

INVERTIBLE HIVES.

[766.] May I be allowed to endorse Mr. James Lee's sound advice to bee-keepers, namely, to test new ideas practically before rushing to conclusions, and his further caution for all but the skilled 'to go slow'? A great deal of harm has, I believe, been done by those fertile workers, who have put forward crude, unfertilised notions in the guise of proved facts, and no doubt numbers of beginners have thrown up bee-keeping in disgust because they have failed to secure the impossible results these others professed to have obtained and promised them. It is an act of generosity, more or less, for a man to publish his ideas to the world; but what I complain about is that, in the bee-world especially, many writers forget to mention that their ideas are nothing more than ideas, and that they have never really been put to a practical test.

On the other hand, it is unfair to condemn a system without trial merely because it is new, or, perhaps, because in a single instance, and under unknown conditions, it has not proved successful. My own experience of the system of inversion, which Mr. Lee is entirely wrong in speaking of as untried, bears out this view.

In 1885 I got some reversible frames from Messrs. Neighbour and others, but reversing them seemed to make no difference in results, as far as I could see; later on, however, happening to read Mr. Garratt's very interesting article on reversing skeps, I determined to give the plan a trial. The skep on which I experimented was in no way a specially selected one, but one of average strength. The result surprised me. It gave the earliest sections in the apiary, and a number far in excess of the average per stock. A single trial cannot be conclusive, but this one, I need hardly say, has very much modified the opinion formed previously; and I am very sanguine that, though reversing frames with its attendant disturbance of the brood-nest may do more harm than good, the Heddon system, so well spoken of by the majority of those who in America have tried it, may be a very long step in advance.

Bee-keeping on modern principles is in its infancy, it is hardly out of the experimental stage, and I trust English authorities on bee matters will, while cautioning

novices not to go too fast, give every encouragement to progress and experiment, and condemn nothing merely on the ground that it has not been tried, or that it is of foreign invention.—D. A. Thomas.

POLLEN GRAINS IN HONEY. (741.)

[767.] In answer to your correspondent in *The British Bee Journal*, 16th December, 1886 (741), page 500, I drew attention to the beautiful object found in the honey-comb, 'pollen.' A paper of mine was read in reference to this object at the Royal Microscopical Society meeting in 1865—see *Quarterly Journal of Microscopical Science*, 1865, page 163. With regard to the various pollens which the bee collects they are far too numerous to name. They are often spores of different plants, as well as pollen, thus collected. The bee in collecting them makes up, or builds, the honey-comb, mixed together with the wax. If they are found in honey, it is by accident, or by pressure of the honey-comb, which is gently heated by the trade to extract the honey. Thus the pollen is often found in the honey of the shops, but the best way to get a great variety is to soften by gentle heat part of the honey-comb on a slide for the microscope; your correspondent will find then numerous pollens and spores of plants. A better way still to exhibit the pollen is to gather them from various flowers, and immerse them in olive oil on a slide for the microscope. I have mounted many very successfully, having made it a study for some years. There is a difference of opinion in respect to the food of the larvæ of bees. My belief is that honey forms the chief, and that pollen is not used as food.—Edmund Gill, *Linn Villa, Sutton Hill, Surrey.*

NOMENCLATURE.

[768.] I notice in your last issue that 'C. R. S., of South Cornwall,' calls attention to the word 'rabbet' being improperly used in your columns. Johnson's Dictionary informs me that a 'rabbet' 'is a joint made by paring two pieces of wood so that they wrap over one another.' Now the shifting slide mentioned in describing Neighbour's Sandringham hive is itself comprised of several 'rabbets,' so that it really may be called a rabbeted slide. Would this term suit 'C. R. S.' better? It seems to me a not very important matter to call attention to.—Alfred Neighbour.

NOMENCLATURE.

[769.] Mr. Editor, permit me to draw your attention to letter 759, page 9 ('Nomenclature'). I am much obliged to 'C. R. S.' for opening up this subject. By looking over the dictionary you will see that a 'rabbet' cannot be any way but on the edge, or at an outside. Such a rabbet as used in Neighbour's advertisement no one can understand. The English language is not so scarce of words as to necessitate the use of one word being used for two such different operations as the two mentioned. A rabbet has only two sides, that is, a bottom and one side. Now this one in Neighbour's advertisement has three sides, a bottom, and two sides. Our trade name for the latter is a *raggle*, although I do not find the word in the Dictionary.

While I am at it I might make a remark about *bumping*. You might try how 'jerk' would do instead of that very objectionable word 'bump.' It was no wonder that Mr. Johns had some difficulty about what was meant. We can understand the crate, but the rack we must try and keep from our bees.—N. P.

COMMITTEE-MEN.

[770.] Though a new member of the B.B.K.A., I would respectfully make a suggestion on the above subject which has occurred to me through reading Mr. J. Garratt's letter (753) with the Editor's foot-note, in the *B.B.J.* of the 6th January, 1887. The committee should doubtless be chosen from members who live at a convenient distance to attend the committee and sub-committee meetings, but why not allow county representatives, *who are qualified members of the B.B.K.A.*, to be *ex-officio* committee-men, so that the county representatives might render assistance to the committee where the large amount of work arises, viz., when they are undertaking important work in his county?—Nota.

THE SALTAIRE EXHIBITION.

[771.] While the question is at the front as to the Yorkshire B.K.A., &c., I would just like to ask you, sir, if a bee show could not be held in Saltaire during the great exhibition to be held there. The Prince of Wales is, I believe, going to be there, so if our friend Mr. Grimshaw with his active pen could only stir up some of the bee-keepers in the neighbourhood, something might be done as regards getting an assistant-secretary, seeing the whole county is too large for one, or, if it could be done, to be divided into parliamentary divisions, which is very feasible. Hoping something will be done, as to the show to be opened, I believe, in May next.—Samuel Watson, *Brighouse.*

[The Secretary of the B.B.K.A. informs us that he has had some correspondence with the secretary of the exhibition alluded to by our correspondent. The B.B.K.A. anticipate no difficulty in securing such an exhibit, providing the executive of the Saltaire Exhibition will provide the necessary attendance during the time.—Ed.]

BEE-CONCILIATORS.

[772.] I think most people agree that prevention is better than cure, and if Mr. Cheshire has discovered a means of preventing stings while manipulating, he has given a boon to the majority of bee-keepers by making it known in the generous manner he has done.

In the past and at the present time bees are looked upon as so many incorrigible 'demons,' or 'fiends' (see *Journals*), and we have therefore employed none but drastic measures, believing that anything of a mild character would be incapable of coping with their terrible diabolical natures. We have not studied their requirements, their rights, their claims, their feelings, but have driven, coereed, and even slaughtered them. Patrotism with bees is a crime. To defend home and stores a greater crime still. They must be subjugated. And how? Why, like unarmed rebels before soldiers, bayonets, sent head over heels, followed by volumes of burning smoke, or Mr. Webster's *pleasant* carbolic fumes. But with all our subjugating apparatus we get stung. What we want is peace and no coercion, and I hope Mr. Cheshire has found the remedy.

I consider Mr. Grimshaw's new coined word anything but appropriate for the 'family' he got into. 'Apifuges' would imply something to drive bees headlong in terror and confusion, and I feel sure that is not what Mr. Grimshaw wanted to discover when he commenced experiments last summer.

Now, sir, '*bee subjugators*' have been used for many years, and have not proved absolutely infallible; and now we are going to try another 'law' I would suggest that it be called 'the bee conciliator.' Let us take advantage of the high development and fine, extreme sensitiveness of their olfactories, and present something of a pleasing, enchanting nature; something to move into activity

those gentle, amiable, social properties they possess, and at the same time subduing all pugnacious propensities. I feel certain such a remedy will be found, if it is not already.—A. GREEN, *Selston, Alfreton.*

THE BEES OF PALESTINE.

(Extract from *Natural History of the Bible.* By H. B. Tristram, M.A., LL.D., F.R.S.)

The honey-bee and honey are frequently mentioned in Scripture, and bees were, from a very early epoch, reclaimed and kept in hives, as well as sought for among the rocks. The hive-bee of Palestine much resembles our own *Apis mellifica,* and still more closely the hive-bee of Italy and Southern Europe (*Apis ligustica*), but is decidedly smaller, and of a much lighter colour. The swarms, or colonies, are also generally more numerous, and the cells of the combs are of course a little smaller, while the combs themselves are frequently of great size and weight. It is the *Apis fasciata* of Latreille; and now, as of old, is quite as abundant in a wild state as reclaimed. Indeed, the wild bees, of precisely the same species, are far more numerous than their hived relatives, and the greater quantity of the honey sold in the south of Palestine is obtained from wild swarms.

Most of the allusions to bees in Scripture refer to these unreclaimed stocks, which when robbed attack their plunderers with great fury. In some parts of India so enormous are the swarms of wild bees, that there are ravines which it is impossible to traverse, owing to the fury of their attacks. 'The Amorites, which dwelt in that mountain, came out against you, and chased you, as bees do' (Deut. i. 44). 'They compassed me about like bees' (Ps. cxviii. 12). 'The Lord shall hiss for the fly that is in the uttermost part of the rivers of Egypt, and for the bee that is in the land of Assyria' (Isa. vii. 18). In this passage allusion appears to be made to the well-known custom of arresting bees by loud sounds, a custom which has come down from the earliest times, and is practised among ourselves in the tinkling and jingling of iron utensils to induce a swarm to settle when it has left the hive. The word 'hiss' alludes to the call to attention universally used in Eastern countries, which, instead of 'hallo,' or 'hey,' is always 'hist' or 'hiss.'

The abundance of bees of old is attested by the frequent mention of the Land of Promise as 'a land flowing with milk and *honey*' (Deut. viii. 8). Few countries are more admirably adapted for bees than this, with its dry climate and its stunted but varied flora, consisting, in large proportion, of aromatic thymes, mints, and other labiate plants, as well as of crocuses in spring; while the dry recesses of limestone rocks everywhere afford shelter and protection for the combs. Thus, the rocks are generally spoken of as the treasure-houses of the bees: 'With honey out of the rock should I have satisfied thee' (Ps. lxxxi. 16). Wild honey is also found in trees. Thus, 'All they of the land came to a wood; and there was honey upon the ground. And when the people were come into the wood, behold, the honey dropped' (1 Sam. xiv. 25, 26).

In Judges, xiv. 8, we read of a swarm of bees taking up their abode in the carcass of the lion which Samson had slain, upon which he propounded his riddle: 'Out of the eater cometh forth meat, and out of the strong cometh forth sweetness.' We must not suppose that the carcass was a putrid and corrupt mass, for in the dry season the heat will speedily render a carcass in that climate a mere mummy without any offensive smell until it is moistened, and the ants speedily clear away all the softer parts of the body, if any are left by the vultures, so that merely the skeleton and hide would remain. Even in this country, wrens and sparrows have been known to make their nest in the body of an exposed crow or hawk.

In the wilderness of Judæa, bees are far more numerous than in any other part of Palestine, and thus honey was part of the homely diet of the Baptist in the desert, as it is to this day among the Bedouins, who squeeze it from the comb and store it in skins. Such stores the men possessed who petitioned Ishmael for their lives on that account: 'Slay us not, for we have treasures in the field . . . . of honey' (Jer. xli. 8).

Honey was from the earliest times an article of commerce from Palestine. It was among the delicacies sent down by Jacob with his sons to the governor of Egypt (Gen. xliii. 2), and is mentioned by Ezekiel among the commodities exported to Tyre: 'Judah, and the land of Israel, they were thy merchants: they traded in thy market . . . . honey' (ch. xxvii. 17). It is probable that in several passages honey (Heb. *debash*) stands for the Arabic '*dibs*,' the sweet syrup made by boiling down the juice of the grape to the consistency of treacle; but in most instances bees' honey is undoubtedly intended. Wax was also employed for various purposes, but not, so far as we know, for candles. It was an ingredient in various ointments and perfumes.

The method of keeping domesticated bees has probably not varied from the earliest times, and they are reared, especially in Galilee, in great numbers. The hives are very simple, consisting of large tubes of sun-dried mud, about eight inches in diameter and four feet long, closed with mud at each end, having only an aperture in the centre large enough for two or three bees to pass at a time. The insects appear to frequent both doors equally. These tubes are laid in rows horizontally and piled in a pyramid. I counted one of these colonies consisting of seventy-eight tubes, each a distinct hive. Coolness being the great object, the whole is thickly plastered over with mud and covered with boughs, while a branch is stuck in the ground at each end to assist the bees in alighting. At first we took these singular structures for orans or hen-houses. The barbarous practice of destroying the swarms for their honey is unknown. When the hives are full the clay is removed from the ends of the pipes, and the honey extracted with an iron hook; those pieces of comb which contain young bees are carefully replaced, and the hives then closed up again. Honey, wild or from hives, is always to be purchased, and it is used for many culinary purposes, and especially for the preparation of sweet cakes. It has the delicate aromatic flavour of the thyme-scented honey of Hybla or Hymettus.

But, however extensive are the bee-colonies of the villages, the number of wild bees of the same species is far greater. The innumerable fissures and clefts of the limestone rocks, which everywhere flank the valleys, afford in their recesses secure shelter for any number of swarms; and many of the Bedouins, particularly in the wilderness of Judæa, obtain their subsistence by bee-hunting, bringing into Jerusalem skins and jars of that wild honey on which John the Baptist fed in the wilderness, and which Jonathan had long before unwittingly tasted when the comb had dropped on the ground from the hollow tree in which it was suspended. When we see the busy multitude of bees about the cliffs, we call to mind the promise: 'With honey out of the stony rock would I have satisfied thee.' Amidst all its desolation the Land of Promise is, even to the present day, 'a land flowing with honey.'

The Orientals have a sweet tooth, and are in the habit of eating honey to a degree that would nauseate a Western stomach.

The Word of God is frequently compared in Scripture to honey for its sweetness (Ps. xix. 10, &c.) Deborah (bee) was a favourite and appropriate female name (Gen. xxxv.)

The number of species of humble bee in Palestine is very great, and mason bees are especially numerous, but their stores of honey are too inconsiderable to have been an object of search.

Queries.

Queries and Answers are inserted free of charge to Correspondents When more than one query is sent, each should be on a separate piece of paper.

Our readers will greatly oblige us by answering, as far as their knowledge and observations permit, the Correspondents who seek assistance. Answers should always bear the number and title placed against the query replied to. Any queries unanswered in this way will be answered by the Editor and others.

[773.] *Managing Stock on an Allotment Garden.*—As sometime I may want to take some bees down into an allotment garden, I should be glad of the opinions of others as to the best way of managing a few stocks so as to run the least risk of losing swarms. I should not be able to go to look after them in the daytime, and only occasionally in the evening, as most of my spare time will be taken up among my bees at home. I do not particularly mind whether I work them for comb or extracted honey?—JOHN WALTON.

[774.] *Separation of Wax from Pollen, &c.*—Can any reader of the *British Bee Journal* inform me how I can separate the wax from old combs, pollen, &c.? Is there no cheap wax-extractor to be got that would be useful to a cottager? or can I have one made, and what about the price? I have tried the boiling process mentioned in your last number, and find it a very tedious job. It is a great waste to throw all old combs away, and I am not able to purchase an extractor at prices advertised.—A. S.

NOTICES TO CORRESPONDENTS & INQUIRERS.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

J. B.—*Treatment.*—In the first place we think you erred in putting sections on your swarm, as the honey flow must have been nearly over at the time of putting them on. Secondly, when putting into winter quarters each comb should have been examined, and the bees confined by division-boards to as many combs *only* as they could cover, and, not having sufficient stores for winter, should have been fed. We advise you to leave them *entirely alone, i.e.*, not to disturb, or even touch the hive, until a fine warm day enables you to raise the quilt, and, if food is required, place flat cakes of soft candy on the top of the frames, and cover up with dry and warm quilts. We think you will find the bees alive, but probably requiring food. The few dead, of which you speak, may be accounted for by the normal winter mortality. With the above exceptions your treatment was correct.

S. L. B.—*Carniolans.*—You can prevent these from swarming by giving them plenty of room, and carrying out the instructions given in the pamphlet. If you refer to the article you allude to, you will see that we stated that, 'by giving plenty of room we were able to control them,' and that we did not given them up solely on account of their swarming propensities, but because we found other bees superior to them.

W. (*Salisbury*).—1. *Distance of Frames.*—We place our frames wider apart for winter, so as to get a larger number of bees to cluster compactly between each comb. It does not matter how thick the store combs are. Ours are usually 1¼ to 1⅜ inches thick. 2. *Doubling.*—When doubling, as soon as the two lower hives are filled with bees, and before they become too crowded, add a third or a fourth if necessary. 3. *Stands.*—The hives are on low stands, and are, when piled up, much too heavy to be turned over by the wind. 4. *Empty Combs.*—If you have empty combs, you should use these in preference, to brush the bees back upon. Failing combs, you can use foundation. You must make sure of brushing the queen into the hive. 5. *Position of Apiary.*—Our neighbourhood is a good one, but we attribute our uniform harvests to the use of young queens only, which we breed by selecting only the best, and destroying all those not up to our standard. We should not expect black bees to give us quite as much, but even these can be improved by selection in breeding.

Business Directory.

For the use of Manufacturers and Purchasers of Bee-keeping Appliances.

The Name and Address and Business of any Manufacturer will be inserted in this List, under one heading, for One Pound per annum. Additional headings, Five Shillings extra. Advertisers in 'THE BEE JOURNAL,' whose orders amount to Five Pounds per annum, will be inserted Free.

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HIVES AND SECTIONS.

BEFORE ordering their season's requirements, Bee-keepers will do well to notice prices of Hives, Sections, Foundation, &c. &c., supplied by **THE BRITISH BEE-KEEPERS' STORES, 23 Cornhill, London, E.C.** This Central Depôt (opposite the Royal Exchange) will, it is hoped, prove a convenience to Bee-keepers who may be in the City for a time, or in business.

Arrangements have been concluded with Mr. D. A. JONES, of Canada, for the supply of the celebrated **'JONES-HEDDON' HIVE,**—the Hive of the Future,—and the various improved Half-pound and Pound **SECTIONS,** as exhibited by him at the Indian and Colonial Exhibition. The construction of these sections is such as to enable the bees to pass freely from one section to an adjoining one, and experience has shown that they are filled more rapidly and completely than the old sort in common use in Great Britain. The sizes of the sections kept in stock will be—$4\frac{1}{4} \times 4\frac{1}{4} \times 2$, $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{2}$, $4\frac{1}{4} \times 3\frac{1}{2} \times 1\frac{1}{2}$. The old kind, with closed sides, will also be kept in stock and sold at the same prices as the other kinds, but the kind advocated by our Canadian friend are strongly recommended by us to purchasers. Those who intend exhibiting should not fail to use the new kind. These Sections are made of the best basswood, and will be found superior to, and of better finish than, those of American manufacture.

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Including bottom-board; queen-excluding division board, made of wood and perforated metal; cover; two six-inch brood-chambers, each containing eight frames; two surplus arrangements filled with sections, both with wide frames. Made of good sound Canadian Pine. Price, painted and complete, 17s. 6d.

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This hive has been so arranged that the inner walls on which the frames in the upper tier rest, can be taken out and the hive used for sections, if required. For wintering, the upper storey is inverted and slides down over the body of the hive, thus forming a very compact, (practically) treble-walled hive. Price, 12s.

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Editorial, Notices, &c.

BRAZILIAN BEES.

The last volume of the *Journal* contained various inquiries respecting the bees to be found in Brazil, which were not, however, satisfactorily answered. Some light has been thrown on this subject in a work recently published in two volumes entitled, *Three Thousand Miles through Brazil*, by J. W. Wells (Sampson Low). Mr. Wells was a civil engineer engaged in extensive surveys in the vast country of Brazil, and these volumes record the story of seventeen years of his life passed in the exercise of a profession which carried him over a very considerable portion of the country, and brought him into intimate relations with all the phases of Brazilian life. These years were passed in farms, in huts, under canvas, or with only the starlit skies for a canopy; riding, tramping, boating, canoeing, or rafting on many streams and rivers. Great varieties of climate were met with in these peregrinations.

The volumes do not record a specialist's researches and discoveries, but merely an engineer's matter-of-fact experiences. In his life in the woods, the campos, and the marshes, he several times came in contact with the bees of that country. These are generally the stingless bees (sp. *Melipona*), which are so frequently met with in Mexico and other parts of the American continent, but he also describes some singular bee-nests, the homes of bees which are 'terrible stingers.'

When surveying his first section, in the Rio Parãopera, he came across some bees which are called Mandrasia bees. He says:—

'There are many varieties of small black bees, not larger than a common house-fly—good charitable bees that make excellent honey and do not sting; rarely a day passed but we found a nest of the mandrasia bee. It is really wonderful how the men found them out; I believe I might have spent a week in the woods without discovering a nest. It is only done by watching a bee when it hovers around a tree-trunk without apparently any ostensible purpose; suddenly it will disappear, and an accustomed eye may be able to distinguish a small hole in the trunk not larger than a pea, and on tapping the tree it will be found hollow in the vicinity of the hole; if the tree is felled and the hollow excavated with an axe, the cavity will be found to contain a mass of balls of thin brown wax, about the size of a large walnut, and filled with deliciously fragrant honey far superior to that of the common English bee. The bees fly about in myriads, but inflict no inconvenience beyond their stickiness, for they are so sticky that they seem as though they have just emerged from a honey-pot.'

In passing from Masquita to Picada, while surveying his second section, he encounters others of the same species:—

'A small black bee, common to the grass districts, is very troublesome and annoying: it does not bite or sting; it worries one by its persistent creeping and crawling by dozens over hands, face, and neck, into eyes, ears, and gets tangled in the hair. Brush away a crowd, others instantly take their places. Open your mouth, a number are ready to explore it.'

In certain parts these bees are very troublesome:—

'Out in the open chapador there existed a considerable annoyance in the form of bees. This insect buzzes not, neither does it sting or bite, but it alights on one's flesh in myriads, and devotes all its energies to systematic tickling and minute exploration; it gets into one's ears, eyes, nose, down the back, into the hair, into the clothes; perpetual slapping availeth not, for if a dozen of the sticky things are smashed, a couple of dozen are hovering round for a place to prospect upon; the nuisance can be avoided to a certain extent by wrapping one's head in gauze. Fortunately the pest did not cover a considerable area.'

When passing up the Valley of the Sapão, the author finds bees in ant-hills, with 'tons of honey:'

'That day's march was up the valley: a notable feature of the day was the number of ant-hills four to six or seven feet high,—constructed of clay originally by a species of white ant, but then occupied—certainly one out of every three—by "the bee of the white ants." These bees had turned the ants out of their quarters and domiciled themselves in their place. Without exaggeration I believe many tons of honey could be collected from these mounds; in one hill alone we extracted sufficient to satisfy the appetites of every one—even the mules had their share. The honey is found in little compact balls of delicate black wax about one and a half inch in diameter; each ball is separate and distinct from its neighbour, and the honey is most excellent in flavour. The bees of course flew about us, but were perfectly harmless; they are small and black, not much bigger than a house-fly. The mystery is how they can conquer and drive off the white ants; perhaps many a battle was fought before they gave up possession; now the bees were evidently masters of the situation. Several dozens of the mounds were examined and more than a third were occupied by the bees, but only on two or three occasions was the same mound found occupied by the bees and ants.'

On the Rio do Sonno, a beautiful stream in a lovely country and climate, Mr. Wells saw some curious bee-nests, which are built by another species of bee, very different from the stingless Melipona :—

'The cliffs present bare smooth surfaces of variously coloured rocks, on which a very curious structure often attracted my attention; in a full view it resembles a dark bullock's hide stretched and nailed to the wall of rock, averaging eight by six feet in length and width; sideways it appears inflated and distended and culminates in a hanging point or apex, near its lower side. These curious formations are the nests of the *shupé*, a bee that produces great quantities of excellent honey, but are terrible stingers; and from the position the nests are in, half way up the smooth surface of the rocks, are difficult of access unless the gatherer is enveloped in leather and lowered down by ropes from above, which is sometimes done.'

'AMERICAN BEE-KEEPERS' MAGAZINE.'

The price of the *American Bee-keepers' Magazine* has been reduced to 25 cents (one shilling) a-year, and it is now one of the cheapest bee journals in the world. This paper was started in 1873, and was for over two years edited by H. A. King, assisted by Mrs. E. S. Tupper, Professor A. Wood, and M. E. Williams, during part of the time. It subsequently passed into the hands of A. J. King & Co., and is now edited by Messrs. Aspinwall and Treadwell, who are both practical bee-keepers, as may be seen from their articles. The Journal has been very much improved since it was first started, and now contains practical articles by the leading American bee-keepers. We are able to judge of the improvements, as we have subscribed to it regularly since the first number was issued. Whilst wondering how they can print and circulate a journal forming a volume of over 400 pages at so low a price, we congratulate the proprietors on their enterprising policy, and wish them every success.

USEFUL HINTS.

Weather.—'First it hailed, then it blew, Then it friz, then it snew, Then there came a shower of rain, Then it friz and snew again:'—are lines which well describe English weather during the last five or six weeks; and although we have now a decided thaw, nevertheless it is a very cold one, and on the higher grounds, under hedges, and other places, the wreaths of snow still remain, 'waiting for more,' as our weather prophets say. We scarcely remember a winter more calculated to try the various systems of autumnal preparations for wintering; and where these have been faulty, or have not been made at all, especially where the supply of food has failed, the results will prove disastrous in the extreme.

Examining Hives.—No doubt we shall all be anxious to ascertain the condition of our colonies at the earliest possible suitable moment, but we must put in our *caveat* here, and deprecate any interference whatever with hives or colonies until that moment arrives. There is, perhaps, no kind of interference more injurious to bees than too early examinations after long and severe frost, when the abdomen is distended with fæcal matter, and when the slightest excitement will assuredly cause an outbreak of dysentery, which if the bees had been left to themselves might never have occurred at all.

What to do.—Until mild settled weather arrives—weather in which bees can fly freely—let us content ourselves by keeping entrances clear, supplying soft candy, where required, under quilts, by changing *quickly* damp quilts for dry ones, and by carefully looking to roofs and covers, and guarding against leakage, or snow penetration; all of which operations may, with care, be performed without the least jarring or disturbance. Where moveable floor-boards project beyond the hives, the projections forming a lodgment for snow and rain, and causing internal dampness, we advise a change for dry ones.

Ventilation and Dampness.—As regards ventilation and dampness, however, as in most other matters, opinions vary. Professor Cook tells us that he sealed a large colony of bees with ice, frozen solid, at the entrance of the hive, that the colony remained thus, and also entombed in a snow-bank, for more than three months, and wintered exceptionally well. As the hive was glued, or propolised, at the top, he remarks that the ventilation must have been slight indeed, and hence he draws the inference that, under the best conditions, little heed need be given to ventilation. He tells us also that even during terribly disastrous winters bees have wintered in many cases remarkably well in very damp cellars.

From Mr. Heddon, too, we have the statement, 'In all my varied experience and observation I have been unable to discover any ill effects from dampness, of itself. We ourselves are wintering all our colonies under enamel-cloth, which allows of little or no upward ventilation, and we all know that bees, in a state of nature, so propolise the interior of their domicile as to render it impervious to air or moisture.'

Crown-boards *v.* Quilts.—Dr. Southward, who possesses a large apiary in Michigan, U.S., and has been very successful in out-door wintering, uses the old-fashioned wooden crown-board, which the bees propolise and glue down tightly. Over this he places chaff packing; and in the very severe winter of 1884-5 he carried through his large apiary with almost no loss.

May it not be said to those, therefore, who adopt the practice of placing absorbents in the shape of pervious coverings over their bees—*Aquilam volare docetis*, which naughty boys translate as having reference to grandmothers and eggs? We have repeatedly noticed that colonies left unmanipulated in the autumn, with quilts or crown-boards well propolised, have wintered perfectly and have been amongst the foremost hives at spring.

'Packing.'—Those who are in favour of the pervious quilt will no doubt be able to bring forward advantages possessed by it, but wherever it is used successfully we think it will be found that a good deal of outer packing—of sawdust, chaff, cork-dust, or even boards—has been called into requisition.

Feeding Skeps.—In feeding colonies in skeps a large feed-hole—say of four inches diameter—is an advantage, since over this a large cake of warm soft candy may be placed, and will be taken with avidity by the bees.

The quantity of food contained in a skep may generally be pretty accurately determined by its weight, when balanced in the hands of one who knows its age and history, without breaking it off from the floor-board, which should never be done during the winter, as skeps are propolised more firmly to the floor-board than are frame or box-hives of any description; and it is best that they should remain so, having the entrance sufficiently large to admit of free ventilation, and to be kept clear of refuse.

Crossing the Various Races.—Since our remarks on this subject appeared in last 'Hints,' we have received the January number of the *American Apiculturist*, in which are some very able and suggestive papers by well-known apiarists on the methods of breeding bees in order to perpetuate desirable qualities.

Breeding for Qualities.—Naturally the chief points to be considered in the solution of such a problem as breeding for qualities, are the prepotency of the queen

or the drone as regards certain points or characteristics, such as working qualities, temper, adherence to combs when under manipulation, comb-building, fecundity, &c. Dr. Tinker, who has given much attention to breeding, gives it as his opinion that 'the drone is prepotent in transmitting working qualities, disposition, and the form and size of the male progeny; while the queen is prepotent in transmitting fecundity; comb-building faculty; peculiar maternal instinct; and the form and size of the female progeny.'

Heredity.—He is careful to state that no rule in the heredity of bees is invariable, but exceptions, which establish rules, occur in the heredity of all the animal creation; these exceptions are, however, so few that the rules can be depended upon in developing a superior strain of bees. He also goes so far as to assert that 'the coming bee will be a cross-bred bee, developed from Syrian or Cyprian mother stock: the cross will be with Italian drones.' Mr. Demaree, writing on the same subject, says, 'I look to my breeding queens for the peculiar type of workers I want, and to the drones for temperament.'

When in last 'Hints' we stated that 'the cross between Cyprians and Italians was one of the best, if not *the* best,' we omitted to say that the cross alluded to was from a Cyprian mother and an Italian drone. Our Syrio-Italian crosses have also been from Syrian queens mated with Italian drones, both crosses having proved excellent workers and of gentle disposition. Under manipulation they are very quiet, closely adhere to the combs, and rarely show any disposition to attack. The cross between the Syrian queen and the black drone is also a good bee, but more uncertain in temper than the two former crosses. The above remarks refer only to the *first* crosses, but we have no doubt that their good qualities may be transmitted to their progeny by careful breeding and selection.

We should like to see our queen-breeders advertising queens thus mated, being well assured that no better bees, or bees better adapted to the English climate, than the progeny of such queens exist. It must be generally conceded, particularly in times of depression and severe competition like the present, that attention should be given to producing a superior race of bees as well as to improvements in appliances. In this matter there can be no doubt that other nations — *e.g.*, Germany and America—are far in advance of us. Is it not a fact that there is not a single isolated apiary in this country where any particular race of bees can be bred in its purity? We are aware of the various means by which, without complete isolation, queens may generally be caused to mate with selected drones, but there is *always a doubt*, hence the prevalence of the importation of queens into the country, many of which are of inferior quality. We do not even avail ourselves so far as we know of the best appliances for procuring pure fertilisation, such, for instance, as 'Alley's drone and queen trap,' which ought to be in use in every apiary professing to breed queens of specified races, even if possessed of an isolation of a two or three miles radius. Hence the constantly recurring complaints of hybridised queens being sent out as pure. Certainly there is room for improvement here, especially in the 'selection of the fittest' both as regards queens and drones. These remarks apply not only to one race, but to all, since our native black bees, or German brown, ought always to be bred by selection.

Dry Hives.—Our previous remarks on *dampness* must not be misunderstood, or misconstrued into an approval of keeping hives in a state of perpetual dampness. We have quoted authorities to show that, under certain conditions, it is not injurious for a time at least, and this we did with a view to discourage too early, frequent, undesirable spring manipulations. But where dysentery exists, or hives have become saturated with moisture, or combs mouldy, nothing more conduces to the recovery of the bees than a change to a clean, dry, warm hive, with an application of warm porous quilts as soon as weather will permit; and in extreme cases, weather failing, manipulation should be performed in a warm room, the hives being returned to their stands in the evening, when it is too late for the bees to fly. This is much better than allowing the bees to perish in foul, dysenteric, damp hives. In such cases we always operate indoors by lamplight, and at night, when scarcely a single bee leaves the combs or becomes excited.

Syrup-Feeding.—A Warning.—Let us warn our readers against syrup-feeding for some time to come. The only admissiable food, before the end of February or middle of March—according to the weather—is sealed comb-honey, candy, or dry sugar. Several cases of destruction of colonies by syrup-feeding have already come under our notice. The bees become excited, and with distended abdomens, perish, or, attempting to fly, never return to the hives. If the food is consumed in cold weather, befouling and besmearing the combs and interior of the hive with swollen bodies, they fall, and decomposition increases the evil. Frames of sealed honey should be slightly warmed before being placed at the side of the cluster, a centre hole being cut in the comb as passage-way for the bees.

Preparations.—Again, we advise all, especially those possessed of the larger apiaries, to make preparation for the approaching campaign—hives, sections and cases, foundation, and fixing the same in frames and section boxes—may well and profitably occupy spare time in the evening or otherwise. Hives which have been previously in use should be scraped thoroughly clean, disinfected, and repainted. Spare quilts and floor-boards should be kept dry and ready for use. Removal of hives to new positions may be made, and apiaries set in order, and kept neat, no accumulation of 'odds and ends' being allowed, nor refuse of any kind. Where not objected to, sawdust spread around the hive is beneficial, absorbing moisture and preventing the chilling of bees which settle upon it. Many other little matters, too numerous to mention, will occur to those who give thought and time to their bees.

'AMATEUR EXPERT' WAKES UP AND 'JOTS.'

'Mel sapit Omnia.'

Hybernating! 'A. E.' hybernating! No, no, friend J. Walton. It is with me, as it was with that immortal son of Vulcan,—

'Toiling, rejoicing, sorrowing,
Onward through life he goes;
Each morning sees some task begun,
Each evening sees its close;
Something attempted, something done,
Has earned a night's repose.'

And then, besides that, 'Mel sapit Omnia' with me. And so you wish to savour your new hive with '*mel*.' I thank you for the compliment; put the words on, by all means.

Since I 'jotted' last I spent a most enjoyable day with Mr. and Mrs. Jones and Mr. Corneil, who came down to my 'hive.' I showed them some of my local 'lions,' which included a real primitive English apiary, a herd of shorthorn cattle, a nobleman's park and grounds, as well as a portion of the inside of the mansion, one of the finest private collections of old paintings in the kingdom, a real live Earl, and—would you believe it?—an oak with the largest girth round the butt they had ever seen. Chalk that, please; that is one point for the old country.

As the pheasants flew up he would call out for his shooting-iron, for, be it known, a mighty hunter is D. A. Jones. Our evergreens, most of which were new

to them, gave them unbounded delight; and to get clear of the fogs of London, and see the clear vault above them once more, gave them a far better character of an English winter than they had begun to entertain. I packed them up some few samples of seeds of things they saw, also sprays of various evergreens—holly, ivy, and mistletoe. Even the old people over yonder will feel young at the sight. One who left here when twenty years of age begged that a spray of holly with berries might be brought back to her. How one's heart goes out to them at the thought! The Atlantic now rolls between us, but space can never divide hearts that are knit together. But the leave-taking came at last—a true Canadian one—and now they are at home once more, amongst kindred and friends.

I have heard from Mr. McKnight, who is full of 'recollections of the enjoyable time they spent in dear old England.' May none of us say a word that shall mar the pleasure of those recollections.

Now I predicted that we should all want to rush off and change our hives and appliances that we have proved for those that we have not, and this seems very near being realised. Let us, by all means, 'prove all things,' but, at the same time, take especial care to 'cleave to that which is good.' I know of a ploughman that complained of his plough, and the farmer sent for the maker, who could not only make a plough, but guide it as well as a few men. Having gone a few furrows with it himself he told the farmer—a modern one, seated on his hunter—the plough had a serious fault, *but it was all behind the handles.* Well, it is much like that with our hives. Capable of improvement they are, but the chief fault, speaking metaphorically, is 'behind the handles.'

I am highly delighted to see our esteemed friend, Mr J. Lee, keeps his pen from getting rusty.

You will not give me much more room, but I am inclined to think if I wanted to work an 'off' apiary as Mr. J. Walton suggests, I should 'clip the queen's wings,' put the hives on very low stands, and have alighting-boards right down on to the ground.

As to that Holyland queen, thereby hangs a tale. I am not quite sure, but when I closed up in October there seemed every probability of my having a case for Mr. Cheshire, probably of arrenotokia. (What words these men of science find for us!) I have not yet quite shaped all my 'burning deeds and thoughts,' but must bring these discursive 'Jottings' to a close by wishing you all 'A very happy new year.'—Amateur Expert.

SPAIN.

In a letter addressed to the *Bulletin d'Apiculture de la Suisse Romande*, Mr. Fr. Andreu, of Mahon, Minorca, writes as follows:—'The bee flora of this island is rich in honey and in variety. The only enemy which bees have to contend with are the northerly winds, which are terrible. There are plenty of old-fashioned apiaries ranging from forty and a hundred hives each, but only a very small profit is derived thereform, the hives being very much neglected and the cottagers ignorant of the art. The introduction of the new hives will revolutionise Spanish apiaries, particularly in these parts of the country. Then will the good quality of our honeys be appreciated abroad, which deserve to be better known than they are at present. When we first imported new hives from England, a few years ago, they proved to be a new article to everybody; but the earliest results obtained with them were so good that they soon became a subject of general conversation and of articles in the press. Several bee-keepers adopted our hives as soon as they had seen the advantages they offered and the results we obtained from them.

'We have every reason for being satisfied with the results obtained last season, one hive having brought in 125 francs, or say an average of 90 francs per hive, although a great many of them had only been stocked of late. At present, however, they are all well provisioned with plenty of brood, so that better things are to be expected from them next season.

'Our hives are mostly square in shape and on the supering system.

'Generally speaking, everything new here in Spain is criticised, particularly anything relating to agriculture, but thanks to the good results we are obtaining and our offers to assist in anything we can, bee-keeping is attracting more attention than heretofore. There are already a number of small apiaries in this island, where the new system of hives predominates, and many are projected on the mainland.'

DEVON AND EXETER BEE-KEEPERS' ASSOCIATION.

Torquay Branch.

The annual meeting of the above took place on Thursday evening, January 13th, in Wood's Rooms, Torquay. The report and statement of accounts were read and adopted, the accounts showing a balance in hand of nearly 4*l*. Mr. Masters proposed and Mr. Vallance seconded that the following should form the Committee for this year: Messrs. R. Kitson (chairman), H. Bradshaw, W. Winget, Rev. W. B. Davis, Messrs. G. Pullen, J. Coombes, J. French, and G. Vail, Hon. Sec. It was resolved that the meetings be held quarterly. Mr. Winget proposed a vote of thanks to Mr. Kitson for all his work during the past year, which was seconded by Mr. French.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Upper St. Martin's Lane, London, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. Huckle, *King's Langley, Herts (see 2nd page of Advertisements).*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

BEE-KEEPING IN SPAIN.

[775.] Bee-keeping is still carried on in the old-fashioned style in Spain, and amongst the bee-keepers there are very few indeed who use modern hives. The hives in general use are most varied in form and in the materials from which they are constructed. Some are round, others square or long and are made of cork, basket-work covered with mud, straw and wood, and even hollowed trunks of trees are commonly used.

In all Spain there are only three or four provinces where bee-keeping is carried on largely as a business, more especially in the Alcarria, where almost every village of any importance possesses from ten to twelve *colmenares*, each of these containing from thirty to forty hives (*colmenas*). A colmenar [what we should understand as a bee-house.—Ed.] is a small structure of brick. Up the centre of this building is a passage into which open the doors on either side of it of the fifteen or twenty compartments which contain as many hives. Outside are generally placed two or three common hives to receive any of the swarms that may leave the hives in the colmenar.

In the Alcarria the laws for the protection of hives

are very stringent. The bees are also frequently moved from one locality to another to lengthen the honey harvest. In the other provinces landed proprietors and farmers generally keep from two to six hives, but this is principally either for their own use or for amusement.

Bee-keeping is still in a primitive condition, and not much attention is given to the bees. They are selected and purchased and their surroundings are kept clean, but they are then left entirely to themselves. They are in no way assisted, and are allowed to work in their hives just as they like without any interference on the part of the bee-keeper.

Lately a few Spanish gentlemen have purchased from abroad modern hives made on the improved systems; but this has been more for curiosity and for their own amusement than with the object of their general application.

Like most of our large landowners, Mr. M—— and his brother Count de B—— are amateur bee-keepers; but as a member of several agricultural societies Mr. M—— takes a very great interest in such matters, and having read the French translation of your excellent work (the *British Bee-keeper's Guide-book*) thought it might be very beneficial to propagate the new methods and sound teaching it contains amongst our agriculturists.—C. Wellenkamp, *Chaflan Mallorga*.

[The Spanish translation is already in the press, and will be ready in time for the work of the spring season. —Ed.]

WAX-MELTING.

[776.] A lady correspondent is in trouble about melting her old combs, and no one of our many gentlemen bee-keepers seems to have sufficient chivalry to help her. I have not time just now to write much, but will tell her what I can in a few words.

If you are fastidious don't take the job in hand, it is 'messy' from beginning to end; but if you do not mind a little mess you will like the wax when you have clarified it. Get a large saucepan and boil all your old combs in it, until all the wax has left the pollen and other *débris*. Next get a piece of cheese-cloth, or other strainer that you do not much value, tie it rather 'baggy' over a pan, and pour the contents of the saucepan on to it; you will then get the water and wax in the pan and the *débris* on the top of the strainer. If the bees are not flying, burn the latter out of the way or bury it, which you prefer; when the contents of the pan are cold the wax will be on the top, and you can remove it from the liquor, and of course throw the latter away. I have a tin baking-dish that holds about a quart, into this I put some water and also the wax, first removing any impurities that might have settled on the underneath side of it. I now place this vessel inside a saucepan with some water in the latter, but not sufficient to make the tin containing the wax to float about. Now make the saucepan hot, but not boiling, and keep it hot as long as you can, but do not let it boil, and the longer you keep it hot, and the slower you allow it to cool, the clearer your wax will get. You may stand the tin dish and its contents in the oven if you have a kitchener; but it is risky: you must watch the heat, and be sure to keep it covered or you will spoil the colour by making it dark. The impurities will again have settled, which you must remove. I wanted to say something about foundation *making* and *spoiling*, but have not time, and perhaps some would vote me a nuisance and meddler; but if this is any help to 'A. S.', or any in trouble like her, it will have answered the purpose of—Amateur Expert.

SUSSEX AND YORKSHIRE.

[777.] It is very probable that in the course of a few weeks I shall, for business reasons, be obliged to remove my place of abode from this my native county (Yorkshire), to the southern one, Sussex, and shall feel obliged if any reader of this *Journal*, who is acquainted with the neighbourhood of Petworth in that county, would give me some information under the following heads:—(*a*) Nature of bee flora in the district. (*b*) Time of honey harvest in an average season. (*c*) Prevailing winds. (*d*) Is there any heather near and at what distance? Any other remarks likely to be useful would be gladly welcomed.

Now a few words as to Yorkshire. I regard it, Mr. Editor, as a blot upon the reputation of this county of broad acres that its Association should be so inactive, to put it mildly. I have heard of the County Secretary once, and then it was only casually through a friend who had heard of a visit he paid to an apiary or apiaries in Ryedale. The district round here is a very good one for bees, and bee-keepers are multiplying yearly, until sections, which before the Royal Show of 1883 were an unknown commodity here, are now getting difficult to sell.

When I first heard of County Associations some three years since, I naturally expected that Yorkshire would possess a good one, but was disappointed to find, after some inquiry, that it existed 'somewhere in the West Riding.' Its existence must be infinitesimally microscopical, seeing that our energetic friend, Mr. Grimshaw, cannot 'spot' it. I hope he may be successful in galvanising it into life, and may he be elected district adviser.—Old Ebor.

INVERTIBLE HIVES. (766.)

[778.] I quite endorse that portion of Mr. Thomas's remarks when he says that 'many writers forget to mention that their ideas are nothing more than ideas, and that they have never really been put to the practical test.' As 'it is unfair to condemn a system without trial merely because it is new, or, perhaps, because in a single instance, and under unknown conditions, it has not proved successful,' so also is it unfair, and even wicked, to advocate the use of a certain hive for the purpose of selling it, or a certain system of management, with the experience of a single season, and with one or two hives only.

I am sure that the readers of the *Journal* as well as myself will be much obliged to Mr. Thomas if he will give us his 'own experience of the system of inversion' in detail, and will also give the names of 'the majority of those who in America have tried it,' and have 'so well spoken' of 'the Heddon system,' and in what periodicals they have written, and when.

A friendly discussion on the advantages or disadvantages of this hive and system in the *Journal* will be at any rate as useful as the long discussions as to the latest fashion of introducing a queen, and may be the means of obtaining information useful to those who think with Mr. Lee and others that it is 'best to go slow' in adopting radical changes in bee-keeping, especially for beginners, and that 'the old, experienced bee-keepers should thoroughly test these novelties first,' is the sound advice of Mr. H. R. Boordman, an experienced American bee-keeper.

Although I quite agree with Mr. Thomas that 'bee-keeping on modern principles is in its infancy,' I also think that if a profit or income is desired from the pursuit, that simple, inexpensive hives, with standard frames and walls at least $\frac{3}{4}$ inch thick, are all that are necessary to obtain success, providing always that the seasons are favourable and that the bee-keeper has fairly mastered the rudiments of the subject, and does not over-manipulate his bees, as in my opinion is generally done.

There are not a few of us bee-keepers who cannot look back with regret at useless bee furniture, &c., that we in our novitiate have spent our money on.

I cannot, as an old bee-keeper, close these few remarks without a word of caution as to the purchase of the

Jones-Heddon hive of *the substance exhibited*. I will not at present say anything as to the system, as I do not feel that sufficient time has elapsed since it was introduced to enable English bee-keepers to form a sound opinion. It also appears, from the statement of Mr. Holterman, of Brantford, in Canada (in the *Journal*, 724), who says, 'to the best of my knowledge, and I am pretty well posted as to apiculture in Canada, that there was not one colony in the Heddon hive last winter,' that the Canadians have not any more experience in these particular 'invertible' hives than we have in England; and I venture to say that not one pound of the Canadian honey at the Exhibition was obtained from bees in a Jones-Heddon hive.

There is one thing that I, as a practical bee-keeper of thirty-five years' experience, feel bound to say, that $\frac{3}{8}$ of an inch in thickness, as in the Jones-Heddon hive exhibited at the Conversazione at South Kensington, is not sufficient for the external walls of hives that are wintered out-of-doors in this country.

In Mr. Heddon's book, *Success in Bee-keeping*, he describes the thickness of his hives thus:—'The end pieces being $\frac{7}{8}$, and the side pieces of $\frac{3}{4}$ inch lumber after being dressed on both sides, the long pieces being nailed into the short ones.'

I would suggest to those English manufacturers who propose making hives on this plan that they should not use *less* than, at the least, $\frac{3}{4}$-inch stuff for the outside of these single-walled hives. This will be just double the thickness of the hive exhibited by Mr. Jones, one of which I hope to try next season with an outer case.—John M. Hooker.

FOUL BROOD.

[779.] The 'Man of Kent' is amusing in his way of slashing about a scientific subject, and in the second and third paragraphs of his last letter he jumbles up my name with that of Mr. Cheshire in a very funny manner. I beg to inform him I have no agents recognised or otherwise.

As regards his replies to my question which he puts into paragraphs two and five, I do not consider either attempt any reply at all. If the 'so-called Cheshire cure' failed him because the bees would not take it '*four times stronger*' than recommended by Mr. Cheshire, nobody will blame the bees or Mr. Cheshire either, but when he says in his last paragraph that all admit the Cheshire formula is *too strong*, I find myself in 'a fog' as he is.

No wonder his experience differs from mine and others, and that he can agree with Mr. Saddler that it is simpler to destroy the combs—and I should add the bees too—but even that he has tried without success, and the net result of his experience really is that when the bees themselves take the matter in hand and fly away to a gentleman's stable the disease is cured—probably by ammonia.

If the 'Man of Kent' will kindly inform me how to distinguish a diseased queen from a healthy one without reference to her brood, I shall be ever grateful to him.—Thomas F. Ward, *Church House, Highgate, Middlesex, January* 14, 1887.

DRY SUGAR FEEDING.

[780.] For the satisfaction of others I can endorse Mr. Simmins' plan of dry sugar feeding for or in winter, so far as regards skeps. It is not my own experience, but that of a life-long bee-keeper in Seascale. If he fears the bees are likely to run short of stores in mid-winter or early spring. His plan was to fill a hand basin with raw sugar, tightly pressed down; damp the face of sugar, then reverse the basin and place the same over the crown of hive, first removing the cork or plug in the feed-hole, covering all well up afterwards, and on next inspection always found the sugar taken clean up. I had this some four years ago, but never tested it. These skeps were within a quarter mile of the sea-shore, and exposed to storms from the west.—W. G., *Rastrick*.

A SMALL VOICE FROM YORKSHIRE.

[781.] Having seen it stated in the *British Bee Journal* that we bee-keepers in Yorkshire keep very quiet about our doings, perhaps you will give me space in the *Journal* to make a few remarks as to my doings in the bee line during the last nine years, as I have been a bee-keeper for a little over that time, and perhaps keep bees on a different system to most of your correspondents, I may first of all state that I have tried most plans of keeping bees, and am, I may say, a good amateur carpenter, so that I can go into the profit part of the business as a guide, at all events, to the Yorkshire working man.

I find that a hive with ten Woodbury frames is the largest that should be used for this county, and I also think that if any one has used Abbott's wide-shouldered frames they have no wish to try any others. I made a hive on Mr. Simmins' plan last year, but find the frames simply detestable, and I am sorry to have to say that, as I so heartily agree with, I may say, everything else that Mr. Simmins states. During all these years I have wintered a few single-walled hives, and find them just as good as those with double walls if the outside frames (two on one side and one on the others) are removed and dummies put in their place. This makes the hive double-walled on two sides, and I find seven frames the bees number to winter the bees on, as when confined to that space you require no chaff-cushions, slips at the ends of the frames, or winter-passages.

My first swarm last year was from a single-walled hive, although I had four skeps and seven double-walled hives. I have never found the slightest difference between the single and double, if only the bees are confined on seven combs. I use the ordinary summer quilt.

On looking at my accounts I find that at the end of 1879 I was 40*l*. 17*s*. 4*d*. on the wrong side, but I then kept a good many bees and had a large stock (for me) of hives and appliances. At the end of last season I was 30*l*. 7*s*. 7*d*. to the good for the nine years. I have, of course, put down all the honey as having been sold, although I have given a good deal away, &c., but I am putting myself in the place of a working man, in which case, perhaps, nearly all would have been sold. A working man, however, would not have got his account so much on the wrong side to start with, as I have always tried anything new that came out that I thought worth trying.

One year I had more than twenty hives and did not get a single pound of honey, and had to spend 7*l*. on sugar in the autumn to keep them alive. I never knew such a season, and hope I never shall again. There was not a single bee alive, the following spring, in the whole district, except my own.

My plan of keeping bees is as follows:

Supposing I winter eight hives, and they each swarm twice, I put two swarms together, in every instance, on seven or eight frames only (according to size of swarms), and put a super on at once. This is supposing I have been able to give them old combs. If they have foundation, I put them on ten frames, feed for a few days, and then remove two or three frames and super them. This I have done for many years, and I can quite endorse what Mr. Simmins says about it at once crowding the bees into the supers.

In 1884 I wintered	8	hives, and took	550 lbs.	of honey.
1885	„ 7	„	600 lbs.	„
1886	„ 15	„	350 lbs.	„

Last season was only a moderate one all over England.

The stocks, after they have swarmed, I always extract from, and I do not see that it does much harm disturbing the brood-nest.

I have an idea that the swarms, being young bees, take better to supers. In the autumn I bring them up into pairs and join them, so that I always keep my bees strong in both summer and winter, and am never bothered with having worn-out queens. Yorkshire is not a very first-rate county for bee-keeping, so that we do not look for very great results, although I have taken more than 80 lbs. in sections off one hive.

Last year I tried Mr. Blow's $8\frac{1}{2} \times 4\frac{1}{2}$ sections, which work with a row of $4\frac{1}{2} \times 4\frac{1}{2}$ sections.

In every case the bees started first with the large sections, and a most beautiful shape they are. I should like them better if they were two inches wide, as I never am able to get sections built out the right weight with dividers unless they are two inches wide, which is the only width I shall ever use, and I shall certainly always use dividers.

As one of your correspondents remarked, 'We never hear anything of the Yorkshire Bee-keepers' Association.' I am not a member of it myself and do not think I should ever become one. I have often induced cottagers to start bees in frame-hives, but have always found them go back to the old skep; and with prices as low as they have become I do not think the average working man would make anything out of bees, and certainly not unless he was a good carpenter.

If I ever joined an Association it would be for the pleasure I should have in talking over matters with brother bee-keepers, and not from any advantage I should expect to get from it. What greater pleasure can one have than talking with Mr. Abbott, say, for a couple of hours, over a good cigar?—as I have had the pleasure of doing. I fear this letter has grown longer than it ought to have done, but as I am letting off nine years' ideas in it, it seems to me miserably short, as I could go on indefinitely on such an interesting subject: but perhaps at some future time you will allow me a little more space, Mr. Editor. May I recommend bee-keepers, during this stormy weather when the snow is on the ground, not only to shade the entrances, but to spread some loose hay, or straw, or leaves, all about the front of their hives. This will save hundreds of bees which would otherwise, if the sun came out, perish in the snow.

I fear some may think that I am rather dogmatic in my views and have written as if I was able and wishful to lay down the law to others; but such is not the least my desire, and my excuse must be that it is most difficult to condense a great deal into a small space without appearing to dictate. I do not altogether think it undesirable for a cottager to keep bees in frame-hives, but with present prices very few would make it pay, and they *must* be pretty good carpenters.

I forgot to say that I only keep black bees. Are they hardier than other breeds, or would, say, Italians winter as well on my plan without chaff-cushions, &c.? Perhaps some one of more experience can tell me. How is it that people will go in for extractors with gearing? Mine is one of Abbott's without gearing, and if I so desired I could throw out all the brood with it. Very few turns, and the honey is out. Why get up unnecessary speed?—ARTHUR J. H. WOOD, *Bellwood, Ripon.*

P.S.—I ought to state that in 1886 I bought some skeps cheap in the spring (about March), so that I did not actually winter fifteen hives. If I did not explain this it would look as if I had not followed my plan of always doubling in the autumn.

In 1885 I also had a skep in addition to the seven frame-hives, but as I sold the swarm from it, I did not count it in stating the amount of honey I took. —A. W.

TOADS EATING BEES.—SURFACE FOR HIVES.—MISTAKE OF A BEE.

[782.] I am sorry that truth compels me to confirm the statement of Mr. Walton, that toads are very destructive to bees. The hive of a very strong stock of blacks had a small alighting-board, so that during the late honey season incoming bees collided against those that were leaving the hive and frequently both fell to the ground. To overcome this fault I placed a board sloping up from the ground to the edge of the alighting board, the hive being on nine inch legs. One night in June on visiting this hive with a lantern I found a toad seated close to the edge of the alighting-board. He apparently attracted the bees in some way (I heard no noise), remaining quite still until the bees were within his reach, when he pounced upon them and bottled one after the other most rapidly, taking several while I watched him. I removed the toad to a distant part of the garden, and altered the board so that it no longer touched the ground. On several other occasions I have found toads near the hives at night and have observed them pick up the bees that have been recently killed (such as robbers) and devour them. I have never observed them stand on their hind-legs to reach the bees.

I find that a very good surface for hives to stand upon can be made by first spreading a layer of brick rubbish or stones, then a layer of fine cinder siftings mixed with a small quantity of gas tar, and then again a layer of siftings. This after wetting forms a solid smooth surface in which no weeds will grow and in which nothing will burrow. If four square tiles or bricks are let into the surface (taking care they are level) the legs of hives resting upon them are preserved from decay, and there is no harbour for insects such as ants or earwigs.

Curious Mistake of a Bee.—A lady was sitting at needlework in June, 1886, near an open window, upon the sill of which she placed her reel of cotton, the end of the reel that was uppermost (it was standing on end) had no label upon it. The reel had not been in this position many minutes before a bee with its legs laden with pollen alighted upon it and deposited its load of pollen in the hollow of the reel. After a few minutes it again returned with a second load and so continued for about two hours, during which time it had made a number of journeys, always returning loaded with pollen which it deposited as at first. Unfortunately the reel was removed and its contents thrown away without the result of the numerous journeys being observed. I should be glad to know if any of your numerous readers have observed similar behaviour in a bee.—HAROLD ADCOCK, *Middleton, Northampton.*

NOMENCLATURE.

[783.] There must always be different opinions as to the amount of accuracy desirable in treating of any given object. I am not *too* particular, I think, but sometimes I find it difficult to follow, as I strive to do, the descriptions of designs figured in your useful paper. Even if we accept Johnson's definition a 'rabbet' as a 'joint made,' &c., I do not think Mr. Neighbour is in a better position. He says 'the shifting slide is itself comprised of several rabbets.' What! a block of wood comprised of joints? Impossible. Fitted to others in its place by joints, but surely it cannot be made up of them, any more than the well-known 'trimmings' in *Pickwick* could have been the leg of mutton. *Strictly*, I take a rabbet, or a scarf, &c., to be no *thing* at all, but only a *form*; but waiving this I do not object to the groove in which the piece of timber slides being called a rabbet, though it is not strictly so, or, what is more like it, the piece taken out of the top of these moveable ends (of top hive), but if I understand aright that E E are the blocks of wood then I do think

the right use of terms forbids to call them rabbets. I quite see Mr. Neighbour's position, and I assure him that I have no desire to act the part of the captious critic. He wants a handy word to designate his ingenious device, but he must not use one which is already applied to a form of juncture of two pieces of wood, and it is not for me to suggest one, which, in truth, I find not easy, for 'ends' and 'carriers' and 'blocks' are already appropriated.—C. R. S.

A DISCLAIMER.

[784.] A reference is made in the last issue of the *Journal* by 'Man of Kent' to my 'Agents' calling attention to the price charged for phenol as excessive. Since I have no agents, and stated so in the *Journal* now quite two years since, I ask who are representing themselves so to be? When my experiments and discoveries were first promulgated, I agreed to guarantee phenol and give directions through Messrs. Holland and Lyon, receiving a royalty of 4*d.* per bottle which royalty was to supply a sum to be devoted to further experiments. As a result, I have not received, as I before stated, sufficient to pay the postage of the letters I have been called upon to write in connexion with this subject. It is simply preposterous that I, who have not been excelled by any living bee-keeper in the amount of time and energy I have devoted without any thought of reward beyond that of following research and aiding my fellows, should be not once or twice, but frequently in your *Journal*, addressed as though guilty of extortion. I have sought no man's silver or gold, but, on the contrary, have expended and am expending my own freely, in my devotion to scientific apiculture. I trust that care will be in future exercised that such statements as those made by 'Man of Kent' may not appear, and that you will in justice publish this disclaimer.—F. Cheshire, *Avenue House, Acton, W.*

[It seems to us just possible that the phenol might have been purchased by 'Man of Kent' while the agencies were still in force.]

GLEANINGS.

In the *Bienenzeitung*, Major V. Mann gives his experience with regard to drones having white eyes. He refers to what Baron V. Berlepsch says respecting them in the *Bienenzeitung* in 1885, p. 169: 'I possess a Cyprian colony, in which there are several hundred such drones; only one single drone has eyes of the usual colour.' Major V. Mann says that in all his experience he never saw a drone with white eyes return to a hive when once it left it. He has seen them in numbers in front of his bee-house crawling about in the grass, and saw them rise fifty or sixty cm., but always to drop down again. He also saw them come out of the entrance and crawl about on the alighting-board. Some were put into a box, taken into a room, and placed on a table, with the lid slightly opened. The drones did not leave quickly as other bees do, but came out languidly, crawled on the table, and dropped on the floor. None flew towards the window. He concluded that these abnormal drones are blind. They, however, have a keen sense of smell. He placed half a ripe pear on the window-sill, and they crawled out of the box towards it, and remained upon it, but none of them attempted to go towards the light of the window. During the slaughter of the drones he observed those with white eyes were driven out much sooner than the normal drones. Six days after these albinos were driven out he examined the hive, and could not discover one, although there were plenty of others. When he took hold of them a yellowish liquid faeces was ejected, which does not occur if an ordinary drone is grasped. He is of opinion that these albino drones are diseased.

In a note F. M. Vogel, who has examined them microscopically, says the eyes are quite transparent, the pigment being absent, and the hairs at the corners of the facets are also colourless. The simple eyes were also white. The lower of these simple eyes projected, and shone like a fine crystal. He agrees with Major V. Mann in considering them blind.

In the *Chemical News* A. B. Griffiths, who has been studying the action of salicylic acid on ferments, states that a solution containing 0·2 grains of salicylic acid per 1000 c. cm. of water quickly destroys some micro-organisms, such as *Mycoderma aceti*, *Bacterium lactis*, and other. It seems to act upon and to dissolve the cell-walls of these organisms. Although living *torulæ* are not destroyed, their activity is impeded by the solution of salicylic acid. Saliva does not exert its fermentative faculties in the presence of this acid.

Replies to Queries.

*** *In their answers, Correspondents are respectfully requested to mention in each instance the number and the title of the query asked.*

(773.) *Managing Stock on Allotment Garden.*—I have for several years managed stocks on allotment gardens half a mile away, and have had excellent results from the following plan. I use a hive containing twelve standard frames, having another the same size full of empty combs, which I place on the top when the first is full of brood, and when doing so (about the end of June) I take one comb of brood from the bottom hive, placing in the top one among the empty combs, and place an empty frame with narrow strips of guide, not in the place of the brood extracted, but immediately over the entrance and in front. This frame will not be filled with comb before the harvest closes, and the top hive will contain 80 lbs. of honey in a good season, and swarming is prevented. I have taken in this way over 100 lbs. from one stock.—T. F. Ward.

[773.] *Managing Stock on an Allotment Garden.*—I should go to work on the non-swarming system, as bees always work better for sending off a swarm. Make it as soon as there are any drones in the hive. It is very easy to prevent after-swarming by giving them room to work in. Place two empty frames with comb starters in the front part of the hive next the door. As soon as they are drawn out replace them by others. Cut those drawn out to fill the sections. The best way to cut the combs is to have a box just to hold the comb with saw-cuts $4\frac{1}{4} \times 4\frac{1}{4}$, or the size of the inside of section, and with the comb so cut fill the sections.—R. L. Richardson, *Gresham House, Corbridge.*

Queries.

Queries and Answers are inserted free of charge to Correspondents When more than one query is sent, each should be on a separate piece of paper.

Our readers will greatly oblige us by answering, as far as their knowledge and observations permit, the Correspondents who seek assistance. Answers should always bear the number and title placed against the query replied to. Any queries unanswered in this way will be answered by the Editor and others.

[785.] *Clover for front of Hives.*—A lady has a plot of ground in front of her half-dozen bee-hives which is generally full of weeds all summer, owing to her gardener being shy of the bees. Can any one advise her what mixture of white clover and other seeds to sow it with so that it will grass itself over?—Mrs. Sumner.

[786.] *Specimens of Honey.*—I have been hunting up for some time now all the specimens of honey I can get hold of, and am anxious to make it as comprehensive as possible; and I noticed at a recent meeting held in London that the following exhibited samples of honey which I would like to have the address of, viz., Messrs. Haw, Gardner, & Co., Liverpool (Chilian, Cuban, &c., honey), Mr. Liddell, Lancaster (English heather), and Mr. Carr, Higher Bebington (white clover). If any bee-keeper can give me

the addresses of any others who could possibly assist me in this matter I would deem it a great favour.—Anos.

[787.] Would any of your readers give instructions for making an unicomb observatory hive?—Castle Douglas.

[788.] Would some experienced bee-keepers kindly give treatment for bees badly troubled with dysentery? Also, the most suitable coverings for hives 'kept in a bee-house,' for spring, when breeding is at the height; for summer, during the honey-glut; and also for winter? Is the American-cloth so often mentioned in the *B. B. Journal* the same material as is often called oil-cloth?—Far North.

Echoes from the Hives.

Port Mahon, Minorca, Dec. 27.—On Nov. 1st we looked over the eleven hives in our apiary. My best hive had ten combs full of brood, and the rest four or five each. (I had stimulated them just a little after the summer heats.) On the 15th of this month, profiting by a very fine day or two, we looked them over again. Best hive had brood in only six combs, the rest in two to four. Shall not handle them again till the middle of February, when I intend to begin stimulating. We calculated they had 2 cwt. of honey for winter, which, though not sufficient in a cold climate, I consider all that is necessary in a country where they can pasture all the winter long when the weather permits it. One of my transferred hives occupied five storeys last summer, though it was transferred so late that only a fortnight's honey-flow fell to its lot (from May 1 to 15), and only 50 lbs. of honey were got out of it. By November we had reduced it to two storeys. On examining it this month we found the lower storey empty of brood and honey, and, as the combs were new, I thought constant passage through them to the upper storey would soil them, and reversed the order of things, putting the lower and empty storey on top. Now what I wish to inquire, Mr. Editor, is whether I did right in so changing the two storeys? for evidently the bees had not intended to winter in the lower storey. I preferred to leave the empty combs on to taking them off, thinking the bees would at times occupy them and thus keep them clear of moths, &c. Our climate being comparatively mild (thermometer generally ranges about 55° to 65° Fahrenheit, and never goes below 40°) I do not anticipate any bad results, but may be mistaken for all that. Two or three months ago I wrote a couple of articles on modern bee-keeping for one of the most influential of Spanish journals published in Barcelona, the *Diario*, which caused quite a sensation, and overwhelmed me with letters of inquiry from all parts of Spain. I have hopes that next spring will witness many attempts at bee-keeping in frame-hives on the part of amateurs. Whether success will attend their efforts is at best problematical, though under proper teaching much might be done in this beautiful climate. I am sorry I have succeeded in obtaining but a few subscribers to the *British Bee Journal*, as the generality do not understand the English language. French is more generally spoken, and I have therefore given course to many copies of *Cowan's Guide* in that language, also to the Swiss *Bulletin d'Apiculture* of Mr. Cowan's friend, Mons. Bertrand.—F. C. Andreu.

[We should not have changed the hives in the way you have done, but would have preferred to have left only the one containing stores. The stores should be at the top of the hive where the heat is greatest.—Ed.]

Honey Cott, Weston, Leamington, January 10th, 1887.—Since my last echo, written at the beginning of December, the weather has not been suitable for bees getting out in any considerable numbers, but as we have had a fall of snow, I have found a few brought out by the reflection. On Saturday last snow fell to the depth of nearly a foot, and so made plenty of work in clearing the roofs of the hives, and putting blocks and boards to shade the entrances to prevent the bees being enticed out—to their deaths; for I find, as a rule, when once they are on the wing they never get back to their hives when snow is on the ground. —John Walton.

NOTICES TO CORRESPONDENTS & INQUIRERS.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

W. C. C.—1. *Wax.*—In No. 186, Vol. XIV., we gave statistics of the amount of wax imported and exported during the year 1884, from which it appeared that we imported in that year 28,258 cwts., value 105,813*l.*, and re-exported 10,378 cwts., value 36,467*l.*; in 1885 we imported 38,295 cwts., value 140,253*l.*, and re-exported 10,328 cwts., value 26,706*l.* The value of the honey imported in 1885 was 61,344*l.*, but we are not in a position to say the amount or the value of the honey re-exported. — 2. *Uses of Honey.*—The Rev. V. H. Moyle, who has devoted much time and attention to this subject, has published a leaflet showing the chief manufactures in which honey is an ingredient, which would render you much assistance. 2. *Uses of Wax.*—Wax is valuable for many purposes in this country, but it is of still more importance in parts of Europe and America. It forms a considerable branch of trade and manufacture as an article of extensive use in the religious ceremonies of the inhabitants. Humboldt informs us that wax to the value of upwards of 83,000*l.* was at one time annually exported from Cuba to New Spain, where the quantities used in the festivals of the Church are very great, even in the smallest villages. The value of that exported from Cuba in 1803 was upwards of 130,000*l.* At the Zurich Exhibition, in the year 1883, there were no less than twenty-two distinct uses of wax exhibited, among which were,—painting in wax colours, wax modelling, wax salve, wax plaster, wax tapers, moulds of teeth, anatomical preparations in wax, meerschaum tubes, wax matches, comb foundation, candles, medals, photographs, &c. Wax is applied extensively in the arts and manufactures.

T. P.—*Transferring Combs from large frames to Standard.*—Do not attempt it until the weather is warm, or you will so check the prosperity of your stock as to render it useless for the season. You need not fear loss of brood; even if you have to cut off some parts of the comb containing it you can give the cuttings for the bees to hatch out, the only loss being the few cells actually divided by the knife. In a strong colony this will soon be repaired.

O. T.—1. *Combs Built Irregularly.*—From your letter you do not appear to have been sufficiently careful in spacing your frames, and probably your hives did not stand level. Hence your difficulty. In your new hives keep your frame 1 $\frac{3}{16}$ inches from centre to centre, preferably by metal ends.—2. *Supers not accepted.*—There are so many reasons for this that without fuller particulars we cannot name the special one. The colony which deserted the lower hive for the super, and made that its home, did so from the absence of queen-excluder, allowing the queen to ascend and make her brood-nest there. A conversation with some experienced bee-keeper would do more good than much reading. We hope you will succeed in future as well as you appear to have done in your first season.

D. Shaw.—*Langstroth Hive.*—You cannot do better than use the Langstroth hive as you have done, but we should prefer having an outer casing, and the space between the two filled with chaff, for winter. When using the Carr-Stewarton we did not get more honey than we have done with the ordinary frame-hive, in which the bees developed much faster. Shallow hives were tried long before the moveable frame-hive was invented, and are still used in some places, but they have not been found profitable. We should advise you only to try one or two, and compare results before you go in largely for the Heddon hive. In this hive, the frames are always kept at a certain distance apart, by wide ends, and are kept in their places by means of screws; but, having tried such frames, we should not care to use them again. We hope to be able to give a description and illustration of Shuck's invertible hive shortly.

M. H.—*Dysentery in an Observatory Hive.*—We advise you to procure a small box, sufficiently large to receive the two frames—side by side—from the observatory hive, and to transfer frames and bees to this box. The frames should be transferred in the room in which the observatory stands, and the sides, bottom and top bars of

the frames (while the bees are upon them) should be scraped, or sponged, clean and a little salicylic acid solution, or Condy's fluid, applied, so as to wet the frames as little as possible. A cake of soft candy—(*finely* powdered loaf sugar mixed with liquid honey to the consistency of putty)—should be laid upon the tops of the frames in the box, covered with thin paper and pressed closely down upon the frames. Cover over with several thicknesses of flannel or woollen cloth of loose texture, and over all a board to keep the material close to the frames. Place the box in the position which the observatory hive occupied, providing an exit for the bees to fly outside. It was an error to feed with syrup, and this has probably caused the mischief, but it is very difficult to winter bees in an *observatory* hive, especially small colonies, and it is doubtful whether yours will recover. Failing the box recommended, it will be best thoroughly to disinfect and clean the observatory hive and to return the bees to it. When transferring disturb the bees as little as possible. An expert would perform the operation in five minutes.

Enquirer.—*Soft Candy.*—We can recommend Good's candy, a kind of food much used in America, which is made by mixing together liquid honey and very finely powdered loaf-sugar until the consistency of dough, or stiff putty, is attained. The paste is then laid on the frames over the cluster in the form of a cake, and covered with the quilt.

A Hawes Bee-keeper.—We have forwarded a sample of your honey to Mr. O. Helmer, and trust to be able to insert his report thereon in our next issue.

Dry Sugar Feeding.—Referring to Mr. Simmins's letter on dry-sugar feeding, in last *Journal*, will he kindly state. Will the usual-size hole for syrup feeding cut in quilts, say, $1\frac{1}{2} \times \frac{1}{2}$, be sufficient to pile the sugar over, or must there be a larger hole made? I mean to have ticking next frames, the sugar placed on that, and then the thick quilts over the sugar, or American-cloth next the sugar if preferred, and, Will the sugar so placed do for *stimulating* feeding in the spring?—F. J.

Croaking.—May I say that on several occasions I have heard such a sound coming from the hives as a correspondent called 'croaking?' I could hardly believe it came from a hive at first, but I have no doubt now.—Br. W.

Hedges.—I also saw in the *Journal* a correspondent making inquiries about a hedge for the protection of hives. I would say that a willow hedge answers the purpose admirably. I planted such a hedge three years ago, by putting in willow sticks about four feet long, crosswise, and the first year it certainly protected the hives. Now it is seven feet high, and, although my apiary is in a very exposed situation, during the recent gales my hives and covers were not displaced in the least. It seems the best time to plant is early spring, and it requires constant clipping to keep it within bounds, but repays the labour by making a thick, bushy hedge. My hedge is made up of several varieties of willow—I think six or seven—the bloom of which in spring is very pretty, besides supplying the bees with pollen.—Br. W.

Erratum.—Page 16, column 1, line 16, *for* promulgated *read* propagated.

Show Announcements.

Giving Name and Address of Secretary, Date and Place of Show, Date of Closing Entries. Terms: Three Insertions and under, Two Shillings and Sixpence; additional insertions, Sixpence each. No charge made to those Associations whose Shows are announced in our general Advertising Columns.

July 11–15.—Royal Agricultural Show at Newcastle-on-Tyne. Entries close May 12. Sec. J. Huckle, Kings Langley.

August 3–5.—Yorkshire Agricultural Society at York, Secretary, H. L. Rickards, Poole, near Leeds.

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Burtt, E. J., Stroud Road, Gloucester.
Edey & Son, St. Neots.
Hole, J. R. W., Tarrington, Ledbury.
Howard, J. H., Holme, Peterborough.
Meadham, M., Huntington, Hereford.
Meadows, W. P., Syston, Leicester.
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Stothard, G., Welwyn, Herts.
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Walton, E. C., Muskham, Newark.
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THE BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, St. Martin's Lane, W.C.'

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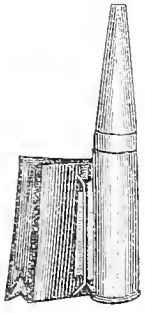
Editorial, Notices, &c.

HOW TO MAKE A BELLOWS SMOKER.

A good smoker is an indispensable implement in the apiary. One of the best is the Bingham, and although there are many sold as Bingham smokers, some of these are only very inferior imitations of it. There is nothing more trying to the patience than to find, during an operation, that the smoker one is using will not work and will not send forth the needed smoke; and yet it has been our lot, not unfrequently, to come across such a smoker when assisting a brother bee-keeper in his manipulations. We have seen some made in this country that worked quite as well as the originals, but the majority are made with a view to cheapness, and not efficiency, and quite regardless of the principles upon which a smoker should be constructed.



Bingham Smoker.

The usual defects consist in using unsuitable springs, and leather for bellows, and in not making the entrance in the barrel above the blast-pipe in the shape of a funnel. This defect, if the pipe and the hole above it are not exactly in a line, causes a great deal of air which ought to be driven into the smoker to pass on one side, and the full power of the bellows is not utilised. The spring being of steel instead of brass, and the wrong shape, prevents the bellows working smoothly and closing sufficiently, so that the whole volume of air in the bellows cannot be driven out. The only drawing and description of a Bingham smoker we know of is that given lately by Mr. Cheshire, but from his drawings it is evident that he has either never seen a genuine one, or else he has never dissected one to ascertain its mechanism, and has not understood the principles upon which it is constructed. We need hardly say that if any one made a smoker from the drawing given by him, it would only resemble the Bingham in outward appearance, and would be no better than many of the imitations at present in the market. The illustration he gives on page 13 of the practical part of *Bees and Bee-keeping*, and which appears to be an exact facsimile of the illustration given in the first and second editions of our *Guide-book* (see illustration in previous column), with the smoke added, is that of an old pattern discarded in 1883; but even in this the interior is similar to the one we are about to describe, and which has been the only pattern sent out by Mr. Bingham since 1883.

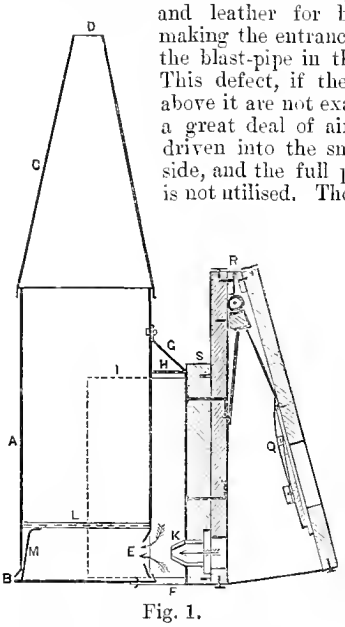


Fig. 1.

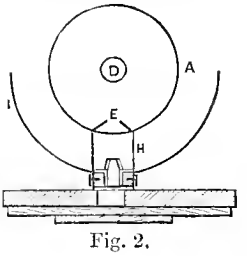


Fig. 2.

The illustrations we give are drawn one quarter of full size, or a scale of 3 inches to a foot, except Fig. 9, which is 2 inches to the foot.

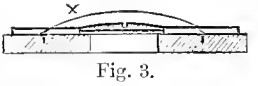


Fig. 3.

Fig. 1 is a vertical, and Fig. 2 a horizontal section, through the blast pipe and top board of the bellows. Fig 3 is a section of the bottom board through the valve.

We will first make the tin work of the smoker.

The barrel, A, is $2\frac{1}{2}$ inches in diameter and $6\frac{1}{4}$ inches long. No solder should be used, as the heat would soon melt it and the smoker would come to pieces; therefore all the joints in the tin work must be made without it. The lower edge of the barrel is turned outwards, and the bottom has its edge turned over this, as shown at B. The nozzle, C, is $5\frac{1}{2}$ inches long, and fits over the top end of the barrel, tapering to the top, at which the opening, D, is half an inch in diameter.

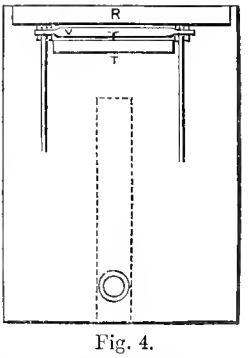


Fig. 4.

Three quarters of an inch from the bottom of the barrel bore a half-inch hole, E. Then get a piece of wood an inch in diameter, and cut one end to the shape of a cone. Place the pointed end in the hole and drive in the tin until you have a funnel as seen in the illustration. This funnel, although apparently of trifling importance, and is omitted in nine out of ten smokers as well as in the illustration above alluded to, adds greatly to their efficiency. If the blast-pipe does not correspond exactly with the hole in the barrel, without the funnel, part of the air is blown on to the round surface and is lost, whereas when it impinges on the inner sides of the funne, it is propelled forward, in the direction of the arrows,

through the opening, E, and not a particle of air is wasted.

We have next to make the support, F G, which carries the barrel and the hand-guard. This should be a piece of tin 7½ inches long and 1⅝ inches wide. At 1¾ inches from one end cut in ⅜ of an inch with a pair of shears, on each side, and turn these edges over and hammer them down flat. Do the same thing at the other end and turn down the edges of the centre part at at right angles, thus: ⌐¬. Turn up the end, F, at right angles, and the end, G, at an angle of forty-five degrees, as seen in Fig. 1. The distance between F and G should be 4½ inches from angle to angle.

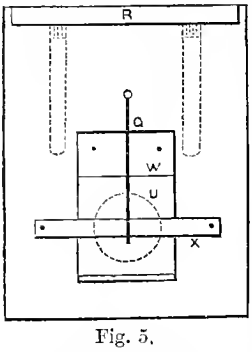


Fig. 5.

For the hand-guard, cut a piece of tin 6½ inches by 4 inches and bend it, as shown at I, Fig. 2. Then get a short piece, H, and turn up the end at right angles, thus: L. The top end must be shaped as shown at H, Fig. 2, as it is intended to support the barrel. This piece as well as the hand-guard can now be riveted to the support, F G. At ¾ of an inch from the end corresponding to the hole in the barrel, punch a ⅝-inch hole to allow the blast-pipe to pass through. The support is now ready to be fixed to the barrel by means of two rivets, seen in Fig. 1. The grating, L, is of sheet-iron, with ⅛-inch holes punched closely all over it. Two strips of sheet-iron, 5/16 of an inch wide, are riveted on in the shape of a cross and turned down right at angles to form legs, M, which must be 1⅛ of an inch long. Before putting in the grating, spring the legs out a little, so that when pushed down the barrel it will be kept in position.

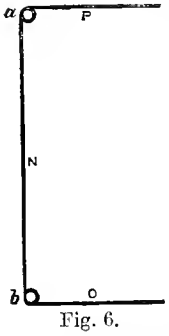


Fig. 6.

We will next make the springs. There is nothing better for this purpose than No. 16 brass spring wire; and this, together with the shape, is what makes the Bingham bellows work so smoothly and pleasantly, without fatiguing the hand of the operator. The best way to make them is to drive into the edge of a piece of inch board two iron pins 3/16 of an inch in diameter, and projecting about ¾ of an inch. Cut your wire 14 inches long and lay it on the board against the iron pins, so that both ends project the same length beyond them. By referring to Fig. 6 it will be seen that the end, P, is turned to the right over pin *a*, and the end O to the left over pin *b*. Each end must have two complete turns and part of a third turn until the ends P and O stand at right angles, in the position shown in Fig. 6. The wire is then taken off the pins and bent at N, until the two spirals meet and the wires P and O are brought in contact with each other, as shown in Fig. 7. Close to the coils give the wires a slight bend, seen in Fig. 8, which shows the spring when it is slightly pressed down, as it would be when between the two boards of the bellows. The springs, however, are stronger if left at right angles. The only metal work remaining to be made is the spring Q, of which a side view is seen in Fig. 1, and a plan in Fig. 5. This consists of a piece of No. 22 brass spring wire 3 inches long bent into the shape shown

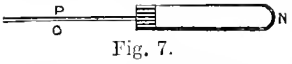


Fig. 7.

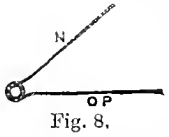


Fig. 8.

in Fig. 1, so as to allow the valve sufficient play, and an eye is turned at the end through which it is fastened by means of a tack to the bottom board of the bellows.

We will next proceed to make the bellows. For the wood-work we can have nothing better than well-seasoned yellow pine free from knots, as lime-wood, which is usually used, is not so common with us as it is in America.

The pieces of wood necessary will be:

Two pieces 5½ × 5 × ⅜ inches, planed on both sides.

Two pieces 4¾ × ½ × 5/16 inches at one edge, and ⅛ inch at the other, as shown at R, Figs. 1, 4, and 5.

One piece S, Fig. 1, 4¾ × ⅞ × ½ inch, with a groove 1/16 inch wide, sawn half way through ¼ inch from the ends. These are to allow the wire to pass through which is used for fastening the support of the barrel F G to the woodwork.

One piece T, 2½ × ⅜ × ⅜ inch.

One piece U, 2 × 2 × ¼ inch for valve.

In the board, Fig. 4, taking as a centre ¾ inch from the edge cut out with a centrebit a ⅝ inch hole. In board, Fig. 5, two inches from the edge, cut out a hole 1½ inches in diameter.

In piece S, at ¾ inch from one end, bore a ⅜ inch hole, and drive into it tightly a piece of brass tube, the mouth of which is contracted to ⅜ inch as seen at K. This contraction is easily made by driving the tube into a conical hole drilled in a piece of iron. Just below the blast-pipe chisel out a piece 1/16 inch deep to admit a strip of wire gauze which is to be placed there to prevent the possibility of any dirt or ash from the smoker getting accidentally into the bellows.

The piece S can now be glued on the board, Fig. 4, in the position shown by the dotted lines, it being on the underside in the illustration. To prevent its being broken off, drive two wire nails through, and clinch them as shown in Fig. 1. Glue the strips R on each of the boards, with the thickest edges towards the hinge, and the piece T ⅜ of an inch away from R, Fig. 4. Secure all these pieces with a couple of nails each, but do not allow the points of the nails to go through the boards, and thus disfigure them. The piece of wood V, Fig. 4, is 3½ inches long by 3/16th inch square. The two ends are rounded, so as to allow them to fit tightly into the holes of the spirals in the spring. A piece of No. 22 wire is inserted through the holes, and lays along the side of the wood, and when the springs are in the position seen in Fig. 4 the ends of the wire are turned up, and prevent the springs from slipping off.

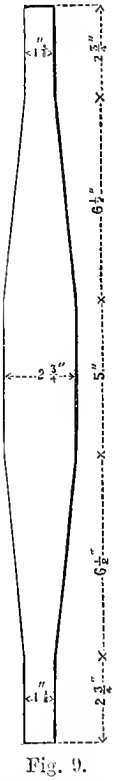


Fig. 9.

The boards are now ready to put together, and to have the hinge put on. This is a strip of leather 5 inches long and 1⅛ inches wide.

Lay the two boards, Figs. 4 and 5, so that the strips R face each other. Then glue the ends, and put on the leather. The valve U can then be fixed. It has a groove sawn out through half its length to allow the spring Q to work in it and keep it in its place, and this side is rounded off as shown in Fig. 3. The valve can be fixed to a piece of leather W, 3¼ × 2 inches, by means of a short tack driven through the centre, the point being riveted on the other side. The wood of the valve should not be glued to the leather. Two tacks at one end, Fig. 5, will keep the leather in its place, and allow it to move freely up and down at the other end. Now nail the spring Q in its place, and put the loose end into the groove of the valve. Nail a strip of leather about

$4\frac{1}{2}$ inches long by $\frac{3}{8}$ inch wide loosely over the valve, so that when this is open, the opening does not exceed $\frac{1}{4}$ of an inch.

The leather used for the bellows should be Persian, or a similar strong and not too pliable leather, and must be cut to the size and shape shown in Fig. 9. The widest part of the leather is $2\frac{3}{4}$ inches, and the narrow ends $1\frac{1}{8}$ inches. If many pieces are to be cut it is better to have the pattern made of sheet zinc to cut the leather out by.

The spring being in its place and at right angles, we shall want something to keep the boards the exact distance apart while we are fixing on the leather. This can be a stout wire cramp, bent thus [ ], the distance between the points being just $2\frac{3}{4}$ inches, or a piece of wood may be used with a notch the same size cut out of it. Carefully glue the edges of the boards, commencing from the narrowest part, and lay on the leather, starting from where the tapered part begins; and before removing the cramp, drive in a tack close to the end in each board. The ends and other sides can then be glued, and the leather secured in its place. The two end pieces which have to go over the hinge are better fastened with paste. Where the ends overlap, the edges should be thinned down by paring with a sharp knife. All round the edge we can nail strips of leather $\frac{1}{4}$ inch wide by means of tacks, of which there should be six on the longest side and five on the shortest. These strips of leather need not be glued.

It now remains only to put the bellows and barrel together to complete the smoker.

The support of the barrel is slipped on to the piece of wood S and a couple of tacks, as seen in Fig. 2, are driven into the wood on each side through the tin sides of the support F, G, which we previously turned down at right angles. As an additional precaution against accident and breakage we can tie the support to the wood by means of annealed iron wire, which is passed through the saw grooves in piece S and over the angles of support F, G. Bring the ends together and two or three twists with a pair of pliers will make all firm.

If our instructions are carefully carried out we shall have a real Bingham that will send a greater volume of smoke, and that to a greater distance, than any other smoker we know. We have had such a smoker in use since 1878, and although we have been obliged to renew the barrel which became worn through from constant use, nothing has been done to the bellows, which is just as good as it was on the first day we had it. A smoker like this will burn almost any sort of fuel that will produce smoke when smouldering. We use old rags, brown paper or sacking, but peat, decayed wood, or even ordinary fire wood will do, when it is well kindled.

In using old rags we tear them into strips about four or five inches wide, and roll them up loosely until they nearly fill the barrel, they are then tied to prevent them from unwinding when stored away, for we always get a lot ready at one time. One end of the roll for about $\frac{1}{4}$ of an inch is dipped into a weak solution of saltpetre and when dry this end will light easily with a match. Brown paper is rolled up in the same way, but we generally lay in a few straws, cut to the same length, between the layers. One end of these brown paper rolls is also soaked in the solution of saltpetre.

When we use sacking it is generally from an artificial manure bag, as these cost us nothing. The edges of these rolls are also soaked in saltpetre solution to make them light more readily. Firewood is cut four inches long and split into pieces $\frac{1}{4}$ to $\frac{1}{3}$ an inch square, and must be perfectly dry. To light it put a few live coals or lighted shavings into the barrel and fill up with the sticks. Put in the lighted end of either fuel used towards the grating.

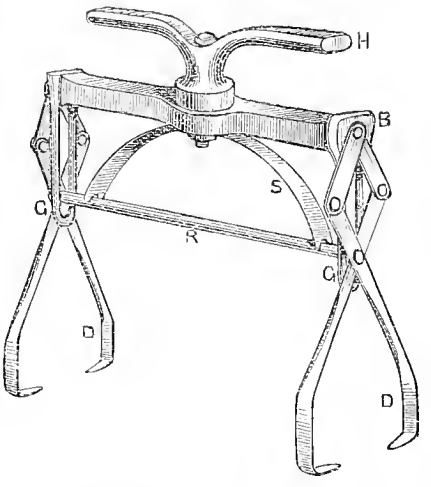
When the smoker is stood on end, as in Fig. I, the upward draught causes the fuel to burn freely. When we wish to extinguish it the smoker is laid down on the bellows bottom and the nozzle plugged. A smoker properly charged will burn for five or six hours without any replenishing. A roll of rag five inches long and $2\frac{1}{2}$ inches in diameter has lasted us during a whole day's operations. If the grating gets stopped up it can be cleaned with a wire, and the nozzle should always be kept clear.

We hope these details will enable those who have asked us to give them to make an efficient smoker and will explain the reasons for the complaints we get from time to time about smokers not working properly.

WEBSTER'S SWIVEL FRAME-LIFTER.

This appliance, which was shown at the Conversazione of the British Bee-keepers' Association, held on the 19th inst, and evidently met the approval of all present, is the invention of Mr. W. B. Webster, and will no doubt supply a want long felt.

As the illustration denotes, it consists of a handle H revolving on a swivel, a bar B, which carries two dogs or clutches D, one on each end; these being opened by raising the rod R, but automatically closing by the pressure of the spring S on each end of same rod,



two guides G G carry this rod and keep the whole firm, preventing any swaying of the clutches. Such is a description of this ingenious appliance; its manner of use will present itself to our readers.

As is well known, in removing a frame from a hive, both hands have to be employed; with this instrument, only one—the left hand—is needed, leaving the right hand free to do anything that is required, such as catching the queen, on taking one off the comb the frame can be replaced in the hive, still only using the left hand to do so. If both sides of the frame have to be examined, it can be turned round in its natural position by means of the swivel handle; this will be found of great importance, as in the ordinary method the frames have to be turned upside down in order to examine the opposite side; the bees being thus 'inverted,' commence righting themselves, throwing all into confusion, in which the queen joins, and so frequently escaping observation. By the peculiar arrangement of the clutches, the heavier a frame is the tighter the grip, there being, therefore, no chances whatever of its falling.

In the Heddon hive this will no doubt be found a very necessary appliance, there being no 'ears' to the frames to hold by, when any necessity arises for removing one.

BRITISH BEE-KEEPERS' ASSOCIATION.

Committee meeting held at 105 Jermyn Street, on Wednesday, January 19th. Present the Hon. and Rev. H. Bligh (in the Chair), Rev. Dr. Bartrum, Rev. F. G. Jenyns, Rev. F. S. Sclater, Captain Bush, Captain Campbell, J. M. Hooker, H. Jonas, and the Secretary. The minutes of the last meeting having been read and confirmed, Dr. Bartrum moved, and the Chairman seconded, 'That this Association desires to express the deep sense of the loss the Royal Agricultural Society and the British Bee-keepers' Association have experienced in the death of Mr. H. M. Jenkins, late Secretary of the Royal Agricultural Society. Mr. Jenkins was always most willing and anxious to assist in the advancement of British bee-keeping as an industry closely connected with the progress of agriculture; and this Association desires to express its deep and sincere sympathy with Mrs. Jenkins in the affliction that has befallen her, and begs to assure her that the memory of Mr. Jenkins will be long and gratefully cherished by this Association.'

On the motion of Mr. Jonas, and seconded by Captain Bush, it was resolved to arrange for an expert's or lecturing tour in the Northern counties preparatory to the Newcastle Show.

The statement of accounts for the past year, as audited and duly signed by the Auditor, Treasurer, and Secretary, was presented, and, after some discussion, was passed, and ordered to be printed in the Report.

The Finance Committee presented a lengthy report of the financial condition of the Association, accompanied by statistics and recommendations in regard to the expenditure during the ensuing year.

Captain Bush moved, and Captain Campbell seconded, a vote of thanks to the Finance Committee, for their full and complete report.

Prior to the Conversazione, which commenced at six o'clock, a meeting of County Representatives was held. There were present, W. Horton Ellis, Devon; Mr. A. B. Lipscombe, Herts; Rev. W. E. Burkitt, Wilts; J. Garratt, Kent; T. J. Witt, Surrey; W. L. McClure, Lancashire and Cheshire.

The minutes of the last Quarterly Conference having been read, Mr. McClure called attention to the rules laid down for the management of the County Competition at South Kensington, and on behalf of the Lancashire and Cheshire Association he was requested to state that it was considered advisable that in any such future competition the regulation as to corking of the bottles of honey should be dispensed with, and that the mode of fastening the mouths of the bottles should be left entirely to the discretion of the exhibitor, and that in the event of any method being adopted which in the opinion of the judges was not secure the same should be disqualified. In regard to sections, Mr. McClure further recommended that no limit should be made in regard to size or weight, and that the mode of protecting them from bees or other injury should be left entirely open, in order that scope might be given for new inventions in this direction.

The matter having been discussed, the Chairman pointed out that the regulations had been made upon the recommendations and suggestions of the County Representatives themselves at a fully attended meeting; and although some members of the Committee were in accord with Mr. McClure's views, the majority were of opinion that for exhibition purposes it was necessary to have the regulations defined. In the event of any such competitions being arranged in the future, full consideration would be given to the views of the Lancashire and Cheshire Association.

The meeting then resolved itself into the Conversazione, when among the audience assembled were the Rev. F. G. Jenyns, the Hon. and Rev. Henry Bligh, the Rev. Dr. Bartrum, Mr. Jonas, Captain Campbell, Mr. Meggy, Mr. Grimshaw, Mr. T. B. Blow, Mr. Henderson, Mr. Garratt, Mr. Sambels, Mr. Baldwin, Mr. Haviland, the Rev. W. E. Burkitt, Mr. J. Lee, and other gentlemen, and two ladies.

The Rev. F. G. Jenyns (Chairman), in opening the proceedings, said the Committee felt great satisfaction at seeing so many friends of their cause gathered together for the purpose of hearing the paper which Mr. Grimshaw had kindly promised to read, entitled 'The Vocal Organs of Bees.' It had been said—and he thought with truth—that there was nothing too minute in nature to justify the closest and most careful observation; there was no doubt that wonderful discoveries had, in many instances, been led up to from insignificant beginnings. At first sight it seemed to be unimportant what cause gave rise to the buzzing or humming, but at all events the subject was interesting to bee-lovers, as, indeed, was everything connected with the organization of the bee. He hoped and believed he would learn something that evening, which possibly some day or other might be turned to practical use. He knew very little respecting the organs of sound in the bee, and what little knowledge he had was gained from Mr. Cheshire. That gentleman, if he could have been present, would have no doubt contributed some valuable information to the discussion—valuable, because given by a very close observer who had a thorough acquaintance with the subject.

Mr. Grimshaw, in the course of a few prefatory remarks, said he felt considerable diffidence in speaking on a high scientific subject before the select audience present that evening, and for the purpose of showing how the paper he was about to read had originated he wished to carry their minds back twelve months to the quarterly meeting held in January, 1886, when he had the honour of communicating to them by means of a paper his opinions regarding the bee-sting. On that occasion the discussion which followed trenched upon the subject of the vocal and auditory organs of bees, and his views thereon were asked. At that time he had almost completed a paper on the question, and he undertook with their consent to read it on the earliest opportunity. He had now much pleasure in doing so, as follows:—

The Vocal Organs of Bees.

It may be thought that the subject I have chosen to say a few words on is more fitted for discussion amongst physiologists than bee-keepers. Perhaps so; yet the interesting conversation at the quarterly meeting just a year ago leads me to suppose that the more the bee-keeper studies the construction and habits of his favourites, the more successful will he become as a honey-farmer, exactly as the most economical and trustworthy engineer is he who best has studied the scientific 'why and wherefore' of the intricate machinery under his charge. If bees can hear, we may reasonably conclude they have a voice. If bees have a voice, there is at once a strong presumption that they can hear, and that these two faculties are given them for the purpose of communicating with each other. I know of nothing in nature having the one organ without the other.

It is on record that during swarming bees have been dispersed by the noise of a band of music, re-assembling in the intervals of silence. The whole of an apiary has been suddenly aroused by the noise emitted by an injured queen, the bees stinging every living thing within reach. A sound uttered by the Death's-head moth (*Acherontia atropos*) is said to paralyse them. The queen and imprisoned young queens evidently hear and reply to each other before the issue of a swarm. Kirby tells us (*The Honey Bee*, Nat. Lib., p. 54) that the antennæ, 'by a peculiar structure may collect notices from the atmosphere, receive pulses or vibrations, and communicate them to the sensorium, which communications, though not precisely to be called hearing, may answer

the same purpose.' I wonder why this is not precisely to be called hearing! Then, again, they are provided with depressions on the antennæ which Mr. Cheshire reasonably suggests are 'auditory hollows,' connected as these depressions are with the end of a nerve, precisely as the auditory hollow on the transmitter of a telephone is connected with the telegraphic nerve-wire. Such an extremely sensitive diaphragm may easily be susceptible to myriads of impressions from members of their own kind, although not responding by visible signs to unintelligible tones made by methods used upon them in vain by modern scientists.

It is well said* that we ourselves are not *visibly* affected by the sound of booming cannon, the roar of thunder, or the surging of the waves on a rock-bound coast; yet let a child's tiny shriek fall on one's ear in our crowded streets and all is alarm and agitation. To deny the power of hearing to bees because they don't respond to our sound productions, is equal to doubting the efficacy of the telephone or microphone when their transmitting accuracy is disturbed by violent usage.

Much could be advanced, and innumerable instances quoted, in favour of the theory that our favourite insects can hear, much also that they cannot: amongst the ancient unbelievers being Linnæus and Bonnet: Aristotle and Huber remain doubtful, yet the latter somewhat inconsistently gives instances of sounds uttered by them with the effects produced upon the hearers. Then comes the question, Can they speak? I mean by speaking the utterance of sounds intelligible to themselves.

Dr. Wollaston (*Ins. Misc.*, p. 104) says, 'Since there is nothing in the constitution of the atmosphere to prevent vibrations much more frequent than any of which we are conscious, we may imagine that animals, like the crickets (*Grylli*), whose powers appear to commence nearly where ours terminate, may have the faculty of hearing still sharper sounds which, at present, we do not know to exist; and that there may be other insects (this is what I wish you to specially notice), having nothing in common with us, but endowed with a power of exciting, and a sense that perceives, vibrations indeed of the same nature as those which constitute our ordinary sounds, but so remote that the animals who perceive them may be said to possess another sense, agreeing with our own solely in the medium by which it is excited, and possibly wholly unaffected by the slower vibrations of which we are sensible.' This is what I call a fair description of intensely sensitive auditory organs. Flies on the diaphragm of a microphone have been heard to utter trumpet tones otherwise inaudible to us.

If I can show that bees utter sounds certainly understood by us, how many more must there be which we, with our comparatively coarse appreciation and imperfect comprehension, are unacquainted with? We all know the lazy contented boom of the drone, as contrasted with the irritated whizz and whirr of the disturbed honey-gatherer. We recognise the contented hum of the quiet prosperous hive in opposition to the sharp 'poop, poop' of the lost queenless bee. The sounds of swarming are as distinct to us as are our own distinctive notes. Many of these regular tones, 'familiar to us as household words,' are doubtless of no special moment to the bee, yet they show to their community that 'all goes well,' everything is as it should be outside the hive; these involuntary notes are a sort of perpetual assurance that the outside world is going on much as it should.

Our vocal organs, as we know, consist, firstly, of a reservoir of air in the lungs, which can be compressed by means of the diaphragm and the rib-muscles, and expressed either gently or with considerable force; and, secondly, of an air-tube (the throat), at the opening of which is the glottis. It is the striking of air upon the lips of the glottis which, with muscular contraction and expansion tightening or slackening them, causes the varying sounds of the human voice. Let them be so tightened that they touch each other, and their vibrations become so rapid that a high note in the scale results; slacken them, and the notes fall in exact ratio. From the human voice let us go to the sound produced in some musical instruments—the oboë, the bassoon, and various others. Here two pieces of reed are scraped down until they are exceedingly thin; they are fastened together and placed within the lips, when, after a little practice, we are able to produce the peculiar buzzing notes which give to reed instruments their characteristic charm.

So, I contend, is it with the vocal organs of bees; they have their air reservoirs (I do not allude to the trachea in the abdomen) which serve for them the same purposes as our own, namely, for oxygenizing the life fluid, and for uttering these signals to others of their kind which we term language.

Behind each of the bee's four-wings, two on either side, are spiracles or air-throats, and these are so placed with regard to the wing, that upon air being expelled from the reservoirs, it impinges upon the edge of the wing exactly as the air from the lungs of the musician strikes upon the edges of the reeds, or upon the lips of the glottis in the case of vocalists, causing such vibrations as produce notes. Add to this, muscular tightening or slackening of the film, and its height or depth is varied. This, I imagine, will produce the voice-tones which may be a perfectly comprehensible language to bees, although unheard by us, in the same sense as a whispered conversation at the other end of the room would be here inaudible. In passing:—A young son of mine has informed me that last season he repeatedly observed his pet humble bees vibrate their wings when not extended so as to join the two side wings together by the bent plate and hooks, and that the sound produced with the wings, so to speak, loose, were quite distinct in tone and character from the usual bee-notes.

I do not suppose this theory will ever be more than a hypothesis until we introduce the receiver of the microphone into the observatory-hive—not a difficult thing for scientists. As for the well-known notes we actually hear, it is no *new* theory that they are produced as Swammerdam says:—'By the motion of the wings, which is increased by the internal air propelled out of their bodies through the air-tubes at the same time: for some of these pipes open with wide apertures under the wings. Certain cavities, also, fit for receiving and vibrating the air, and formed under and behind the wings, contribute to this. Nor must the shoulder-blades be excluded from their share in this music, since they are placed just above the wings, joined to the chest, and having under their breadth the openings of several air pipes. It is thus the motion of the wings, with the assistance of all these parts, and by force of the propelled air, makes the humming noise peculiar to that insect.'* Réaumur attributes the sounds of bees 'to the wings beating more or less rapidly against the air, according also, it may be, to the different angles at which it is struck;† and he expressly says, that a bee whose wings are eradicated is perfectly mute. Hunter, on the other hand,‡ affirms that, though the wings be torn off, and the legs held fast, they can still emit a shrill peevish sound, as they can also do when their wings are smeared with honey, and even when they are held under water, which he observed to vibrate at the point of contact with the air-holes at the root of the wings.

Since writing the above, the sixth part of Mr. Cheshire's admirable work on bees has appeared, and he, as ever, goes most exhaustively into the question. He quotes Landois, who noticed three tones in the flight sound:—(1), the wing beats, (2), vibrations in the

* Cheshire.

* Biblia Naturæ, i. p. 168. † Mémoires, p. 617.
‡ Phil. Trans. 1792.

abdominal rings, (3), notes from the true vocal apparatus placed in the stigmatic orifices (he stopped these with wax and brought the *humming* to a close at once). Mr. Cheshire tells us that the wings undoubtedly do the buzzing, but the humming is as clearly the outcome of an apparatus within the spiracles of the bee. He goes on to describe this anatomically, and concludes by attributing the voice of the bee to sounds emitted by plaited and fringed curtains lying behind the edges of the spiracle, these curtains being played upon by air puffed in and out at the will of the bee. Whether by this means, or by the air being forced against the wing edges, by vibration of the wings, or by all of these methods, I hope I have shown you that there is a strong weight of evidence, containing facts which if not already known to us may be easily verified, in support of the assertion that bees, in common with many other insects can hear, by organs not dissimilar to ours, that they can also utter varying voice tones by a method also much resembling that producing the voice-tones of man and the greater part of animated nature which intercommunicates impressions and desires, and that these two faculties, hearing and speaking, are possessed by bees, not without an object, as we can perceive always in the works of nature if we examine them closely, but with the distinct object of being used as we use *language*, and as every other animal uses *language* which possesses the apparatus suitable for vocal signalling.

Granting this much may we not, without disagreeing on points of anatomical structure, conclude that the voice of bees is duplex, first vibratory by the wings as exemplified by the hummer wood, continuous during flight, and conveying only a general assurance of contentment or alarm; secondly, truly vocal by means of the air-sac (the lungs), the spiracle (the throat), and one or more vibrating lips against which the air strikes in respiration, producing notes some of which even we can hear and understand? The vibratory method I will illustrate by the hummer and the truly vocal by the oboë reed.

[The discussion on preceding paper, with the remainder of the matters discussed at the Conversazione, will be given in our next issue.—Ed.]

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Upper St. Martin's Lane, London, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. Huckle, *King's Langley, Herts (see 2nd page of Advertisements)*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

TWO VISITS TO AN APIARY IN WALES.

[789.] Glanrafon, the residence of Nicholas Bennett, Esq., J.P. for Montgomeryshire, is situated in the lovely valley of Llawry Glyn, through which the noted trout stream, the Trannon, flows. Although Glanrafon is only a few miles from the summit of Plynlimmon, contrary to what might be expected, it is admirably situated for bee-culture, being sheltered by lofty hills covered with rich, honey-yielding plants flowering at various periods of the year. In the spring immense quantities of plants of the orders Salicaceæ and Corylaceæ shed their pollen; the latter, however, has little attraction for bees, being wind-fertilised; but, later on, in addition to other honey-yielding plants, scores of acres of white clover are cultivated—thence an immense quantity of honey of the richest aroma might be collected; but,

> 'Alas! full many a flower is born to blush unseen,
> And waste its sweetness on the desert air.'

Some of the hills appear to be gilded when they are covered at a period of the year with the blossoms of Lotus corniculatus (a plant much visited by bees). At the same period one hill is a mass of thousands of 'white butterflies,' the flowers of the sweetest of plants, Orchis bifolia. There are also miles of plants of the order Ericaceæ which tinge the mountains with the purple heather.

Mr. Bennett may truly be said to be a disciple of Dr. Bevan, having enjoyed the friendship and acquaintance of the 'bee-doctor' in his early days for a considerable time, and from him learning a great deal of bee-keeping, &c.

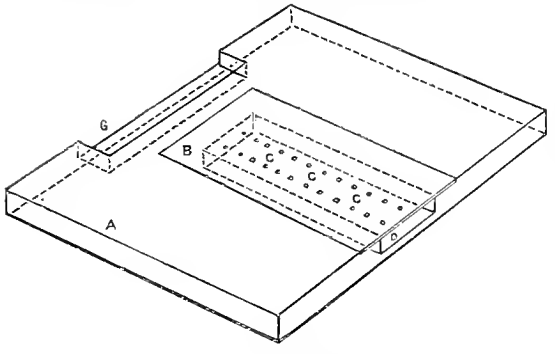
Mr. Bennett is now advanced in years, and vast improvements have been made in apiculture since Bevan's time, but still with very great regard for his first bee-master he shows his visitors a very rare work upon bees by his friend Dr. Bevan. Mr. Bennett has all his life studied bees with his favourite hives, *facsimile* Bevan's, from which he has taken immense quantities of the richest and most beautiful honey. January, 1886, found the apiary consisting of a large number of Bevan's hives, and, alas! the poor bees gone to their final rest, excepting one solitary colony in a very weak condition. It might be mentioned that the much-respected mother of this gentleman, Mrs. Bennett, when only fourteen years old, found a stray swarm on the Plynlimmon Hills, and successfully hived it herself in a milk stean (a small milk pail), without help, from which the whole of the neighbourhood has been supplied with stocks through her kindness. Mrs. Bennett had great delight and success with her bees, but she has gone to her rest many years ago, and the stocks of bees in the apiary dwindled down to almost extinction. The surviving queen was found in possession of a space between the ceiling and floor of a large room of the hall—the bees of which plundering all hives in the vicinity. As it has been impossible to disturb 'the Gipsies,' as Mr. Bennett has named them (and it might be added Mr. Bennett has the greatest regard for Gipsies of another kind, and is a true and good friend to them), they must have an immense quantity of honey, having never swarmed and being each year exceedingly strong in bees.

Mr. Bennett has taken immense quantities of honey of delicious aroma and other good qualities, but at the time of the visit he was sorely distressed about his stock in Bevan's hive—'his sole remaining joy,' or 'last of his flock.' He consented with great reluctance to have the hive opened or examined!—knowing nothing of the modern methods of bee-keeping, having not even so much as heard of the existence of the *British Bee Journal*. No John Peels about, and work of County Associations complete, &c. However, one of Bevan's hives was prepared for the reception of moveable frames—frames prepared and all got ready for transferring the stock to the new hive—but, upon turning it out, behold! the honey had been extracted by the six-legged bees to their dwelling already mentioned, and only about half a pound of bees left, but queen *extra muros!* A few days after a frame with adhering bees was lifted out of the now modern hive, a fertile queen was placed right in their midst, which was joyfully received, and which eventually built the colony into a very successful and prosperous one. Mr. Bennett was amazed at these proceedings, telling a friend some time after that he thought he was fifty years in advance of any bee-keeper in his neighbourhood with his Bevan's hives, but now he found he was fifty years back!

1887, January. During the year such progress has been made, such knowledge gained, that Mr. Bennett

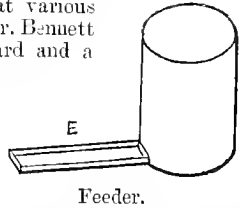
expressed to me that he could hardly have believed it could have been possible to have made such alterations and improvements in his apiary. There is now a good-sized bee-house filled with hives, of course with moveable frames and all latest improvements: a large row of hives containing Standard sized frames, suitable for the production of comb or extracted honey, and all capable of working on the very latest systems of honey production. The hives are arranged most artistically amongst the shrubs of his pretty and picturesque garden. The manipulating house is fitted up with improved Raynor extractors, wax extractors, honey ripeners, &c.; arrangements and apparatus for queen-raising; compartments for sections and feeders, &c.; in fact, a complete arrangement of modern bee-keeping apparatus. Then there is the workshop fitted with a beautiful lathe, built by the late R. Roberts of Manchester, connected with which is a circular saw, drilling machine, fret-saw, &c.; and an adjoining room fitted up as a complete smithy. It should, however, be mentioned that Mr. Bennett has all this for his private amusement and pleasure, and in no way with a view to pecuniary interest. He is a most ingenious gentleman, and has devised some very useful plans for feeding bees, preventing bees from robbing, and others connected with managing and arranging hives.

Perhaps the following illustration of the cleverness of Mr. Bennett may be useful to some of your readers. Fitting up a hive with moveable combs he fixed it in such a manner that the 'Gipsies' were forced to travel through it—this was easily done by making a hole at the back of the hive and fixing it on the outside of the entrance of the wall through which the bees made their way to and from their inaccessible stores: but, for a long time, no notice was taken of their furnished apartments, until Mr. Bennett hit upon the plan of placing a comb containing eggs and brood into this hive; the bees, as



A Floor-board.
B Sheet of Tin perforated.
C Holes in perforation, $\frac{3}{8}$" diam.
D Entrance for Feeder.
E Feeder.
F Uncovered Spout to place in D.
G Bee Entrance.

he calculated, immediately took possession, filled eight standard frames with honey in a week, wax foundations took their place, and a very large quantity of honey thus secured at various intervals during the season. Mr. Bennett has also invented a floor-board and a modification of Messrs. Neighbour's feeder, by means of which condemned bees may be fed.



Feeder.

This parish contains an enormous amount of sickening superstitions connected with bee-keeping and bees, an account of which I am afraid would make these notes too long; but, with your permission, I shall be pleased to communicate at some future time.—T. Bonner-Chambers, F.L.S., *London.*

YORKSHIRE COUNTY ASSOCIATION.

'Another race the spring and fall supplies;
They droop successive, and successive rise.'

[790.] I fear your readers are getting 'Yorkshire relish' *ad nauseam*, but I intend to pursue the subject relentlessly until one of four things happens: (1.) Until you, *père* Editor, are sick of the question, and your gorge rises proportionately with my choler. (2.) Until we are convinced, by a communication from the Hon. Sec. that the Association is so working as to justify its fitness to survive, that it has a *raison d'être*. (3.) Until it explodes with pop-gun report, and melts into thin air, leaving us unfettered to form new Associations in districts where we will not 'give to airy nothings a local habitation and a name;' or finally (4.), Until the B.B.K.A. emancipate us by expunging the Association from their books.

With all respect to the Hon. Sec. (who, I hear, is an estimable gentleman) may I ask one pertinent question? Does he read his *B.B.J.*? and, if so, why does he leave us so totally in the dark by not responding to our inquiries either in love or anger? Neither contemptuous silence nor sulks befit the occasion, for if my comments call forth no reply, surely those of your other correspondents should command some sort of courteous consideration. Even the gods of wood and stone had their prophets *who spoke*, but now, alas! the invocation to Baal brings not the fire to our sacrifice.

'For ever close the impenetrable door;
It naught avails that in its torpid veins
Year after year life's tottering spark remains.'

Instead of 'Up mounts the chief' to tell us of the Association and its work, so that helpers might join in it, we have only the gloom and silence of space. Poor Milton's lines steal into the mind:—

'The sun to me is dark and silent as the moon
When she deserts the night, hid in her vacant interlunar cave.'

I want to make a dreary, dry, and weary subject arouse the interest of my brother bee-keepers of the county, *hinc illæ lachrymæ*. Are we to conclude that our Hon. Sec. *scorns* to speak, or *dreads* to speak, under some such idea as, 'Sh, sir, if I utter but a single tone the whole thing will collapse?' Would we could cremate it, and preserve 'the sacred ashes in a little urn,' perchance to be mistaken for Prince's mixture by some snuff-taking New Zealander *var.* Macaulay!

I saw in an index the other day 'Bees and rheumatism,' I should have liked to read something about 'Bees and bile,' for my bile was very active on the 6th inst. when I received the following, the signature, &c., of which I will suppress:—

'Dear Sir,—Excuse me for being so bold as to write to you, but as I have seen your name in the *B.B.J.*, and as I am a Yorkshire bee-keeper, I should be glad to join any Society that would be a help to us in bee-keeping. I did join the Yorkshire Society, and I wrote twice for information about my bees, and I got no reply until the contributions became due, but declined to pay. I have fourteen frame-hives. There are only two more in our village, and they are all for the brimstone pit here. I shall be glad, if you ever come my way, to give me a call, as I take a great interest in bees.'

Such a letter ought to do more either to awaken the Association into new life, or to give it the *coup de grace*, and cause it to be put decently away than any amount of appeals or diatribes from—R. A. H. Grimshaw.

TOMTITS AGAIN.

[791.] I wish to say a few words on the black-headed tit. I have four good stocks of bees in bar-frame hives. On the 12th of January I noticed something or other had visited two of my hives by the zigzag blocks under the porch having been removed, as they did not fit very

tight; and about fifty wings and legs of bees were lying about near to the hives. I kept watch for about half an hour, and I saw, to my surprise, that it was a black-headed tit, and then it was at the entrance tapping, when out came a bee to see what was the matter. No sooner had it appeared than Master Tit caught it and flew away with it. He came back in five minutes and fetched another, and I got my gun and shot it; then I set a trap at the entrance and caught two others. I can prove that they were not dead bees before they were caught by them, for they disturbed the bees so as to cause several to fly about.—B. W.

APIFUGES.

[792.] Mr. A. Green (page 17) considers the word inappropriate. I certainly paused before I dared take the extreme liberty of coining a word; but as far as I can see it must hold the field until a better is given; one not twice its length and having an absence of euphony.

If the Latin dictionary be referred to, the verb *fugio* will be found to bear the construction, to run away, to be off, to vanish, avoid, forbear; and it was in any, or all, of these senses I used it (there is semi-conciliation here), not in the sense of a helter-skelter, terrified stampedo down amongst the frames. If we use *bee-conciliators* we shall in all probability find our hands covered with bees during manipulation, a consummation *not* devoutly to be wished. —R. A. H. G., *Horsforth, near Leeds.*

PHYSIOLOGICAL QUERIES.—INVERTIBLE HIVES. [756.]

[793.] I see James Lee, in *B. B. J.* of January 6, very properly calls attention to the state of the larvæ in the cells when the comb is in its normal position as built by the bees. J. Lee asks if inversion is detrimental to the brood, and he seems very strongly to object to invertible hives, which, he says, have not been tried. I beg to say I have tried them with several hives this season, and all gave me nearly double the amount of sections.

I see D. A. Thomas gives a good account of inversion with one hive, I having tried several, claim a right to say it is a good plan, and it seems not to hinder the bees in their work, as breeding goes on the same; and my hives went into winter stronger than any other hives that were not inverted. I do not like the reversible frames, as they disturb the brood-nest too much, so I think the Heddon hive just what is wanted, and mean to try a few this next season, as I did so well with my upside-down ones last; and as the Jones-Heddon hive is so cheap I advise the cottager bee-keeper to try it.

Bee-keeping is now taking a step in the right way, I think. With the valuable *B. B. J.* first (not the expert), and the British Bee-keepers' Stores with its cheap appliances, keeping down the price of hives of fancy dealers, and the British Honey Company last, but not least, to buy our honey for cash and to sell it cheap, so all can have a taste; with the New Year and the Jubilee Year too, I trust the cottager is going to have his chance to gather honey to help in these bad times. It was out of his reach when hives were such a price and no market for his honey.—Devonshire Dumpling.

SALTAIRE EXHIBITION.

[794.] I notice on page 17 an appeal from Mr. Samuel Watson for something to be done towards getting together a bee show at the above exhibition about seven miles from here; and it is suggested that I should 'stir up' some of the bee-keepers in the neighbourhood. Now, Mr. Watson, don't you think I've done a fair share of *stirring up* lately? You see our five-barred-gate of an Association prevents any action *beyond* 'stirring up;' anything more would be audacious presumption so long as it hangs with the proverbial tenacity of a creaking gate.

I can assure the Secretary of the B. B. K. A. that the attendance at Saltaire will be enormous, and it would be a fitting opportunity for the County Association to rise to the occasion and distinguish itself; but let us have no *fiasco*. If we have anything let them give us such manipulation as will tend to promote scientific bee-keeping in the district.—R. A. H. G., *Horsforth, near Leeds.*

CLEAR AWAY THE SNOW.

[795.] In most towns there is a law requiring every householder to clear away the snow without delay from the front of his own house. As our bees are not able to do this for themselves their masters should make it a point of conscience to do it for them, and thereby save thousands of precious lives. Snow has been lying in front of my apiary for twenty-four days, and this morning, feeling sure that the brilliant sun and milder weather would have wakened up my pets, I went to enjoy the sight of their pleasure. The whole scene was alive with them, as on a fine day in April; but alas! the snow was plentifully sprinkled with dead and dying, those who had alighted and fallen upon it becoming quickly numbed and stiff. My wife, ever fertile in resource, suggested covering the snow with ashes, so I shovelled it away as fast as I could, clearing about two yards in front of the hives and sprinkling ashes plentifully over the remaining patches of ice. Straw or hay would probably have done as well: but I shall always in future make it a rule to clear away the snow immediately after a fall, and thus guard as well as I can against their first flight being fatal. I did not observe a single bee that had settled on the snow recover itself.

While watching one of my hives I was greatly surprised to see an unmistakable drone make its appearance. Can any one tell me what has been observed of drones surviving the winter? I thought they were never allowed to try the experiment. I doubt if this one will be allowed to re-enter. I also noticed one bee dragging out a team of three dead ones fastened together lengthwise by the feet. I thought it did both his brains and his heart great credit.—C. C. James, *Papworth St. Agnes St. Ives, Hunts, January 19th.*

RAISING THE TEMPERATURE.—A CHEAP FEEDER.—WAX EXTRACTOR.

[796.] In examining my stocks during the cold weather last spring, I used an indiarubber hot-water bottle placed over the frames to prevent loss of heat. After removing the box of cork-dust on top of the quilt, I placed the bottle on the calico quilt, leaving the two back frames clear which may then be examined, and so on; before closing up I put a loose quilt over the bottle for a minute or so, so as to confine the heat; it may then be removed, and the corkdust-box replaced, the bees will not only have suffered no loss of heat, but will probably have gained some by the transaction. I did not find it excited them if not kept on too long; but on one occasion when I raised the temperature too high in a stock suffering from dysentery, it made them leave the hive in large numbers, they voided their fæces very freely, and I noticed a marked improvement in their condition afterwards, and dysentery soon left them; I infer, therefore, that when bees are lethargic from being in this state, raising the temperature on a *suitable* day may be of great advantage to them.

Those who continue to use syrup for spring feeding instead of following the very excellent plan Mr. Simmins has given us for feeding with dry sugar, can make

very cheap feeders by taking a piece of wood six inches square, cutting a two-inch square hole in the middle, and covering this with a piece of tin four inches square, tacked on at one corner, having previously bored about a dozen or so holes in it, corresponding with the hole in the wood; this forms the stage over the feed-hole. Invert over this with a small tin shovel the ordinary glass jam or marmalade jar, of which there are usually quantities about. This feeder can be made by anyone for a few pence except the shovel, which should cost 6*d*. I have used nothing but this the last two years for autumn feeding.

Wax Extractor.—For this purpose I bought last year a tin saucepan and steamer, 7 in. in diameter, at a cost of 1*s*. 1*d*. In the steamer I had a tin dish made 1 in. deep, raised by strips of tin ¼ in. off the bottom, and the same distance clear from the sides all round, with a small spout from it, coming through the steamer, extending about 3 in. beyond and downwards at an angle of about 45°, for the melted wax to run through. In this saucer I have a perforated zinc cylinder, with bottom of same material, ¼ in. less in diameter than the rim of the dish, raised ¼ in. from the bottom by cross strips of tin, and coming up to the top of the steamer to hold the wax to be melted. These additions cost me 1*s*., so that I have a very serviceable wax extractor for 2*s*. 1*d*. I may say I followed as well as I could the plan in *Cowan's Guide-Book*. Would this suit your correspondent 'A. S.' (774)?—W. H. Jenkins.

AN EXPERIENCE IN MOVING BEES.

[797.] A recent experience of mine may possibly be useful as a warning to other bee-keepers. Last Monday I moved a skep to a stand some ten yards distant, in a diagonal line, from its former position. For three or four weeks before the snow had been lying all about and the bees had not left their hive for a longer time than that. I thought it was quite safe to move them, and was so advised by a friend more competent than myself. The next day was warm and bright, and the bees came out in numbers. I was away from home all the middle of the day and did not see them flying; but the next time I looked at my hives, on Thursday morning, I found more than fifty bees lying dead on the alighting board of an empty wooden hive I had placed on the old stand, and several more bodies scattered about the neighbourhood. The only way I see of accounting for this is the following. I had placed a plank leaning against the front of the skep during the snow to shade the entrance. It did not prevent ingress or egress, but I suppose it so disguised the front of the skep as to make it unrecognisable to the bees who returned, and that they accordingly flew off to the old position and then perished. Had I known the thaw was coming so rapidly, I should have, of course, removed the plank; but on Tuesday morning the snow was still so deep and so glaring in the sun, that I thought it better to leave it. I am afraid the loss of life will be serious at this time of the year; it is sad to see the beautiful yellow Italians lying crowded on the alighting board of the empty hive.—F. C. Hodgson.

GLEANINGS.

Our attention has been called to our translation and summary of Dr. de Planta's researches on the nectar of plants to the last but one paragraph, on page 543 of previous volume. Dr. de Planta has explained to us more clearly the ideas he meant to convey with regard to cane-sugar in honey. The paragraph should therefore read thus:—'Whilst cane sugar is present in a great number of nectars, and often in considerable quantities, it is, on the contrary, generally rare in honeys, and is frequently entirely absent. It is found only in the honeys of the Alps in relatively larger quantities.'

In the *Bulletin d'Apiculture de la Suisse Romande*, G. de Layens says that when a queen is removed from a colony with a view, for example, of making an artificial swarm, the bees build drone-comb, and from this bee-keepers have generally concluded that they continue to do this until the queen becomes fecundated. By his experiments and observations, he concludes this is a mistake, and that from the moment the young queen leaves the cell to the time she is fecundated the bees build worker-comb, and not drone-comb, as many bee-keepers think.

In the *American Bee Journal*, T. J. Burrill says:—The flowers of the honey locust (we presume he means *Gleditschia triacanthus*) are what botanists call *polygamous*, that is, they are sometimes perfect, having both stamens and pistils, and sometimes these organs are in separate flowers. In this case they are evidently upon different trees, and the case is not a very uncommon one. Probably these trees will continue year after year to do just the same thing; still it would not be surprising upon close looking if some of both kinds of flowers should be found on the same tree.

In *Hive-Bees indigenous to India*, J. C. Douglas says *Apis dorsata* builds under boughs, normally a single comb, but under favourable conditions, as in caves, it duplicates its comb. Cells, four and a half to the inch, no drone-comb differing from worker found in any comb examined. In a comb from S. Coimbatore the actual measurements were—three cells = ·645″, *i.e.* 215″ each, or 4·65 cells per inch; other three were ·225″, ·218″, ·230″; average, 4·425 per inch. The Sikkim variety is larger than that found in the plains, and the hill varieties generally appear darker and larger than those of the plains: specimens from Jubbulpore are very light-coloured. A comb of the Sikkim variety would be interesting, to ascertain if it differed from the comb of the plains, and if it has drone-cells. In many parts it migrates at certain seasons, and it leaves its comb readily on failure of pasturage. It is reputed vicious, but this is not confirmed by experts; nor is its sting exceptionally severe. This bee is confined to the plains, or does not extend beyond about 3000 feet of altitude. It builds no special drone-comb, all its cells are the same size, and its drone is not differentiated from the worker, as is that of other species, but is of the same size and shape as the worker, excepting that it has the eyes meeting as in the drone of *A. mellifica*.

In the *Bienenwirtschaftliges Centralblatt* M. Ilgen describes his experiment with regard to the requirements of water by bees. He says at certain seasons bees require water more than at others. They cannot raise brood without it, and he finds in the spring they need more than at any other time. Owing to inclement weather in the spring they are frequently unable to get any, and many perish in the endeavour to find it. He has tried various ways of supplying it in the hives and finds the best is by filling combs with water, and placing them in the hives near the outside, putting a comb of honey on the outside next to them. He found weak colonies did not take the water, and the quantity consumed by the various stocks was in proportion to their strength. When bees are supplied with water in this way they do not fly out to get it, consequently the mortality is much smaller.

In the *Bee-keepers' Guide* J. E. Pond, junr., says, 'Every bee-keeper of experience knows that bees don't like to store honey in shallow cells, and that they won't rear brood in cells more than regulation depth. My thoughts on this just gave me a clue to the whole business. My top bars are ⅞-inch wide. In early spring I shave the combs in brood-chamber to just the width of the bar, and replace them in the hive just bee-space apart. When the honey season begins I put on sections and the bees at once occupy them, for they find the room they want for storage, and they at once use it; the brood-chamber being used only for its legitimate purpose, viz.,

that of rearing brood. Of course the size of the chamber must be proportioned to the size of the colony to produce the best results; but no matter how much room is given honey will not be stored in shallow cells so long as space can be found in which to work up deep ones. This with myself is not a matter of theory; it is one of experimental knowledge. I have practised the above method for four seasons and find the results the same.' [This entirely agrees with our experience, and with what we have for many years taught, and for this reason we use no projections or distance-guides to our frames.—Ed.]

In the *Bulletin d'Apiculture de la Suisse Romande*, E. Bertrand says one colony headed by a Cyprian queen, raised at Nyon in 1885, a daughter of one received direct from Mr. F. Benton a few years ago, has shown qualities worthy of being recorded. It gathered this season about 40 kilos (about 88 lbs.) which is the maximum quantity of honey collected by any colony during this bad season. After the honey harvest, *i.e.* from 8th to 24th June, it gave six natural swarms of which four weighed from 2.900 kilos (6 lbs.), to 2.200 kilos (nearly 5 lbs.), and two smaller ones and the stock still remained strong. The colony rapidly developed in the spring, and wishing to raise queens under the best possible conditions they were kept a little cramped for room, notwithstanding that they were supplied with two supers which increased the size of the hive to 100 litres (about 6100 cubic inches). Notwithstanding this room the bees crowded outside; 80 queen-cells were constructed. The mother of this colony was crossed probably with an Italian or a cross breed drone, the workers being well marked. The workers produced are very active and tolerably quiet, which he particularly mentions as a contrast to the character and the want of activity of the imported queen. He says home-bred Cyprians the same as Italians produce superior bees to those imported. The cross breeding seems to produce excellent results, and the introduction of Cyprians into an apiary ought to give bees with good qualities. The future will be able to settle this point.

In the same journal we find M. Du Pasquier stating that he employs quicklime as a remedy for bee-stings. It neutralises the poison which is an acid.

In the *Canadian Bee Journal* G. M. Doolittle says he uses side storing only in connexion with top storing and never recommends exclusive side storing. Bees, he says, prefer to build combs at the sides of the hives, and store honey on the top, therefore he gets sections filled with comb at the sides and when they are raised to the top they are at once filled with honey. He uses wide frames which are interchangeable, so that the process causes but little labour, and after years of trial of all kinds of systems he says he knows no other system which will give as good results.

In the *American Bee Journal*, H. B. Hill, referring to a visit he paid to Mr. J. B. Hall's apiary in Canada, says, one of the things he saw there that interested him was the Caucasian bee. These are smaller than the common bee, and very dark, with a distinct silvery band bordering the back segment of the abdomen, and in mass present a bluish appearance. He says they do not seem to know how to gather honey. One of the assistants thought 'They went to the field to get what they wanted to eat in the honey season, and came home without any.' Although they are accused of being unprolific, he thinks they can raise more queens and drones to the square inch than any other race of bees in America. The Caucasian bees are very gentle in their disposition, and Mr. Hall says 'they were the quietest bees he had ever handled.' It is impossible to handle them so roughly as to make them sting the operator, although if squeezed they will sting. They appear to be very hardy winterers. When crossed with Mr. Hall's 'comb honey' bee, they are very prolific as comb-honey producers, and are beautiful as well as gentle.

In the *Bee-keeper's Magazine* we find H. F. Shannon giving the Carniolan bees a very good character. He says they are very hardy, and the best comb-builders he ever had, and that they make the nicest section honey. They protect their hives as well as Italians, as far as he is able to judge. He has some Carniolan swarms that built more comb in August and September than the best Italian stands did in the honey season. They also work on red clover as well, if not better than Italians; but they swarm more, and some queens raise very poorly-marked bees.

In the *American Bee Journal* we find that at the Marshall County Convention the Mayor of Marshallstown stated he successfully prevented swarms from settling in high trees by using what is called a 'Yankee Queen-stick.' It is made by taking a stick two inches square, the top end dressed down to ½ square for about a foot. On this are nailed laths, six or eight inches long, to form a network. When a swarm is about to settle, this queen-stick is held among them, and he found that they would settle on it.

In the *Official Report of the United States Entomologist*, N. W. McLain, on 'The Production of Wax,' says he observed that if pieces of new comb were exposed on a warm day the bees would tear off pieces of the wax and carry them to their hives for use in comb-building. He therefore put pieces of new comb in a shallow, square tin pan having a close fitting cover, and having holes in the bottom. This pan was placed on the cloth covering the frames, and holes made through this to correspond with holes in tin pan, so as to admit the bees. The heat arising from the bees produced a high temperature, which kept the wax plastic and easily worked. When this assistance was given comb-foundation was worked out with great rapidity, principally by the young bees, aided by the field bees at night, as the comb-building progressed more rapidly at night than by day. There being no necessity for wax producing, the working force laboured without hindrance during the day in the fields, and with equal energy by night in the hive.

In the *Canadian Bee Journal*, S. Corneil says he finds it most desirable to raise queens during swarming time. Cells nearly ripe are placed in cages on the frames over a cluster. When a hive swarms, one of the unfertilised queens is at once run in at the entrance of the old hive, and in twenty-nine out of thirty cases last season they were accepted. This is a sure plan to prevent second swarms, and at the same time gain ten or twelve days.

In the *Journal of the Royal Microscopical Society* we find that Herr K. Müllenhoff, continuing his studies of bees, has investigated the behaviour of the insect in gathering and storing the honey. He discusses the damping and the compression of the pollen, the marvellous adroitness of the bee in forcing its way into flowers, the careful avoidance of mixing the kind of pollen during one gathering, the renewed salivating and compression which the pollen receives from the younger indoor workers before it is stored in the cells, which are always the cells of workers and not of drones. The pollen is frequently deposited in layers, and frequently hermetically sealed with honey, over which a thin pellicle, like a layer of cream on milk, is formed, and this can be pushed aside for the deposition of more honey or walked over without causing overflow. The bees which are going up and down over the full cells often exhibit protruded stings, and that in normal circumstances. Drops of poison from the end of the sting are seen to be deposited on the honey, and the presence of formic acid, absent in pure nectar, is thus explained. The acid doubtless exerts an antiseptic influence on the honey; and the author has beautifully shown that in uncovered honey-cells none is present, and that fermentation soon sets in, which could however be prevented by the addition of ¼ per cent formic acid. Herr Müllenhoff suggests the possible expediency of removing the honey from the uncovered cells, and thus

economising the time and energy of the bees, while the honey could be readily and cheaply preserved by the addition of $\frac{1}{10}$ per cent formic acid from a pipette.

In the *Canadian Bee Journal*, in an editorial it is stated that those who have not used full sheets of section foundation in their sections should try and observe the difference in quantity of honey secured. Our experiments have fully convinced us that sections should contain full sheets, and with the beautiful light section foundation we are now making there is no danger of any backbone in the comb honey. In a letter from Mr. Corneil lately he says:—'Dr. Tinker wrote me to try a quarter-inch starter in the bottom of the section as well as the usual starter at the top. I did so, and as my section cases reverse just as readily as not, I reversed the cases, when the two starters were joined, or nearly so, and the result is that the sections are filled, without so much as a hole for the passage of a single bee.'

Bees, and their Management.—On Tuesday evening, January 18th, the attention of the Uttoxeter Mutual Improvement Society was directed to the above subject, Mr. Thomas Harper reading a paper upon Bees, and this was followed by a descriptive lecture by Mr. F. Harper. Mr. J. Spencer presided, and in his opening remarks said he had known Messrs. Harper as practical bee-keepers for some time, and as they were well acquainted with the subject they were to speak upon he had no doubt but that their remarks would be interesting and profitable. The paper was then read, in which the writer briefly traced the history of the honey-bee, mentioning several varieties now kept in this country. The physiology of the bee was described, showing how these insects are fitted by nature for the objects of their existence—to gather honey, and to assist in the fertilisation of flowers which afterwards produce fruits or seeds. The value of honey as a heat and force-producing food was spoken of, and some of the uses to which it may be put were mentioned. Mr. F. Harper followed with some remarks upon the best methods of managing bees, he also exhibited hives and various appliances, and explained their use and advantages. The methods of supering and doubling were shown, also driving condemned bees, and making artificial swarms from either straw or bar-frame hives. At the close, pieces of comb and comb-foundation, dead bees (including queens, drones, and workers) were passed round, as well as sections of comb-honey. The meeting was well attended, and included a good number of young men, who were very much interested in the subject. At the close a vote of thanks was given to Messrs. Harper for the trouble they had taken.

Echoes from the Hives.

Mayfield, Sussex.—One of my stocks of bees got blown over by the severe storm at Christmas time, and as I was away and the men rather afraid of bees it was put back on its stand almost anyhow. On my going down to the country about a fortnight after I found that the hive was raised from the floor-board on two sides about two inches, allowing the cold wind and air to pass through. I took the hive indoors, rearranged the frames, which had got rather mixed up, and found the bees none the worse. This seems to show that cold does not necessarily injure bees, the weather having been of the coldest and most wintry description.—J. B. S.

Replies to Queries.

*** *In their answers, Correspondents are respectfully requested to mention in each instance the number and the title of the query asked.*

[773.] *Managing Stock on Allotment Garden.* (J. Walton.)—If for comb-honey, use ten frames in brood-nest, and 'tier up' your racks by placing empty one under partially filled one. If for extracted, use empty combs in supers, and extract freely or 'tier up' with another set of combs as with racks. Clip the queen's wings, have the hive almost on the ground with alighting-board touching the same, all grass and weeds clear around the hive; the bees *will* swarm even then sometimes.—W. B. Webster.

[774.] *Separating Wax from Pollen.*—Tie your combs up tight in a piece of strainer cloth along with a stone or stones of sufficient weight to sink this bundle to the bottom of your boiler, light the fire and let it boil a short time, then allow it to get cold. Your wax will be in a sheet at top; press the bundle a little with a stick while boiling. You must remelt this sheet of wax by water heat, and allow it to cool gradually in tall vessels.—W. B. Webster.

[785.] *Clover in Front of Hive.*—Why not sow Limnanthes? This does not grow very high, and looks nice; it sows itself after the first year, and provides plenty of honey. If you particularly desire clover and grass, purchase some lawn grass seed already mixed of a good firm.—W. B. Webster.

[786.] *Specimens of Honey.* (Aros.)—Mr. Carr, of Higher Bebington, Cheshire, can give you the addresses of the parties mentioned.—W. B. Webster.

[787.] (Castle Douglas.)—An Unicomb observatory hive is an oblong case having the two longest sides fitted, preferably, with double glass $\frac{3}{4}$ inch apart, of sufficient inside capacity to take your frame with $\frac{1}{4}$ inch bee space all round, a removable cover fitting on top with a ventilating hole covered with perforated zinc, a chamber called a flight-chamber at bottom and underneath, communicating with oblong case, having perforated zinc on one side for the purpose of ventilation. An observatory (full) hive is differently constructed, and would require illustrations.—W. B. Webster.

[788.] *Dysentery.* (Far North.)—If hive is damp, remove frames—indoors—*en bloc* into a fresh dry hive. Provide clean dry quilts, place some nice warm cakes of candy under quilt, enamel cloth on top of frames, then felt and chaff cushions on top make good coverings for hives during winter and spring; for summer remove chaff cushions. Enamel cloth is American cloth of a description that has little or no smell.—W. B. Webster.

NOTICES TO CORRESPONDENTS & INQUIRERS.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

H. T.—*Uniting queenless stock to another in different-shaped hive.*—There is no doubt that your stock is queenless. You can now only prepare for uniting by approaching the hives to one another a yard a-day, reckoning only those days on which the bees are flying freely. When the weather is suitable for uniting (which will not be until April) get some standard frames, cut out the combs from the odd-sized frames, and splice them into the standards; you can then easily unite the two lots by opening out the frames of the receiving stock with as little disturbance as possible, and gently placing the others between them alternately.

W. G.—*Queen found on alighting-board.*—It is not likely that there were two queens present, and therefore your stock is queenless. You can do nothing at present, but when the weather is warmer you must unite with another stock. In the meantime, approach the hives to one another by a yard a-day, reckoning only the days when the bees are flying freely.

A Cottager.—*Making Foundation, &c.*—We do not think the apparatus you describe well adapted for making foundation, and do not advise you to persevere with it. In dipping, so much depends on the *temperature* of the wax that it is doubtful if you ever succeed in making the plain wax-sheets. It is much better to continue the small strips of well-made foundation, which many skilled bee-keepers give to swarms in preference to whole sheets. Queen-raising by nuclei is described in most of our bee-books, and articles have appeared in the *Journal*. The queen in a swarm may be found by shaking out the bees, and as they run back into the skep guided by feather she may be easily picked up. Evening is the best time to do this.

J. B. S.—1. *Bees on Roof of House.*—Bees twenty feet from the ground should do as well as if nearer to the ground, considering that in a natural state they live in hollow trees. 2. *Ligurianizing Six Stocks from Two.*—Stimulate

your two stocks, and devote them to providing drones and queens as you propose. It does not follow that your neighbours will not have black drones flying as soon as you have Ligurians, still if your queens should be mated with blacks your hybrids will do you good service.

E. F. S.—1. *Bees in Roof of House.*—As you say you do not understand bees, you had better let some more experienced bee-keeper undertake the job of removal; which is one which often taxes the skill and patience of good bee-men. 2. *Hive Making.*—Refer to pp. 59 and 69, Vol. XIV., by following the directions there given you cannot fail to make a good serviceable hive. 3. *Becoming a Bee-keeper.*—Get *Modern Bee-keeping* and *Cowan's Guide*, read them, and also get acquainted with an experienced bee-keeper—your county swarms with them—discuss what you read with him, and with a little practice you will soon get on.

Surrey.—*Transferring Carniolans.*—The operation must not be performed before April, and then only in fine, warm weather. A Carniolan queen may be introduced at any time during the summer, but if done during the honey harvest the income will be checked. We advise you to leave the introduction till near the close of the season, unless you intend to increase by swarming, when the queen might be given advantageously to the old stock after the departure of the swarm. From experience we say that Ligurians are better honey-gatherers than Carniolans, and about as gentle when properly handled. We should doubt whether the cross between Carniolans and blacks are superior to either race pure.

T. M. G.—*Foundation.*—You will find it difficult to get foundation drawn out in time to use on the doubling system during the present year, and if successful the new combs, being tender, would not be well adapted for extracting. Having twenty colonies, and not wishing for increase, we advise you to take away, say, the two outside frames from each colony, and supply their places with whole sheets of foundation, the bees being confined by division-boards. Cover up warmly and feed with syrup at the feed-hole. As the colonies increase in population give more foundation, and spread brood judiciously until your hives are well filled with bees and brood, which they ought to be by the time the honey-flow arrives, when you may proceed to doubling, using the forty frames of old comb previously abstracted in the upper hives. To these latter any combs which can be spared from the lower hives may be added and foundation again given below. Do not remove combs in the first instance until the bees are crowded—about the end of April or early in May. Much depends upon the season.

T. Hill.—Canon Tristram's *Natural History of the Bible* is published by the S.P.C.K., Northumberland Avenue, price 7*s.* 6*d.*

Trade Catalogues.—We have received from Messrs. Abbott, Brothers, Southall, London and Paris, their catalogue of bee-hives and appliances. This valuable catalogue has been considerably enlarged, and contains many improvements in appliances and reductions in prices. Also from Mr. Redshaw, The Apiary, South Wigton, near Lyster, his catalogue of hives and bee-keeping appliances. On the outside page of the wrapper will be found four very complete collections of bee-keeping appliances suitable to a beginner, with the prices attached.

In answer to several inquiries we beg to say that the 'British Bee-keepers' Stores,' 23 Cornhill, E.C., are in no way connected with the British Bee-keepers' Association or with the British Honey Company.

Wax Smelting.—F. H. Lemare of 1 Sydney Terrace, Guildford, writes:—If the lady, said by "Amateur Expert" to be in trouble as to "Wax Smelting" would think it worth while to send her combs, there is a man here who would melt them for her and return the wax. His calculation is, that 4 lbs. of comb produce 1 lb. of wax, and his charge is at the rate of 6*d.* for the 1 lb. of wax. Of course only 1 lb. of wax would not pay. The melted wax is free from 'pollen and other débris.' In looking over the catalogue of Mr. Redshaw, South Wigton, near Leicester, we note his wax extractor, which he styles 'The Poor Man's Friend,' which would be found of great service for small lots of wax and for slender purses.

Dead Queen—Dead Bees have been forwarded to Mr. Cheshire, and we await his report.

Show Announcements.

Giving Name and Address of Secretary, Date and Place of Show, Date of Closing Entries. Terms: Three Insertions and under, Two Shillings and Sixpence; additional insertions, Sixpence each. No charge made to those Associations whose Shows are announced in our general Advertising Columns.

July 11-15.—Royal Agricultural Show at Newcastle-on-Tyne. Entries close May 12. Sec. J. Huckle, Kings Langley.

August 3-5.—Yorkshire Agricultural Society at York, Secretary, H. L. Rickards, Poole, near Leeds.

Business Directory.

For the use of Manufacturers and Purchasers of Bee-keeping Appliances.

HIVES AND OTHER APPLIANCES.

Abbott Bros., Southall, London.
Appleton, H. M., Dowry Works, 256A Hotwell Road, Bristol.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
Burtt, E. J., Stroud Road, Gloucester.
Edey & Son, St. Neots.
Hole, J. R. W., Tarrington, Ledbury.
Howard, J. H., Holme, Peterborough.
Meadham, M., Huntington, Hereford.
Meadows, W. P., Syston, Leicester.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
Stothard, G., Welwyn, Herts.
The British Bee-keepers' Stores, 23 Cornhill, E.C.
Walton, E. C., Muskham, Newark.
Wren & Son, 139 High Street, Lowestoft.

HONEY MERCHANTS.

Abbott Bros., Southall, London.
Baldwin, S. J., Bromley, Kent.
British Honey Co., Limited, 17 King William St., Strand.
Country Honey Supply, 23 Cornhill, E.C.
Howard, J. H., Holme, Peterborough.
Neighbour & Sons, 149 Regent St. & 127 High Holborn
Walton, E. C., Muskham, Newark.

FOREIGN BEES AND QUEENS.

Abbott Bros., Southall, London.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
Benton, F., Munich, Germany.
Howard, J. H., Holme, Peterborough.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
Simmins, S., Rottingdean, near Brighton.
Walton, E. C., Muskham, Newark.

METAL ENDS.

Abbott Bros., Southall, London.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
Lyon, F., 94 Harleyford Road, London, S.E.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
Walton, E. C., Muskham, Newark.

COMB FOUNDATION.

Abbott Bros., Southall, London.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
Howard, J. H., Holme, Peterborough.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
Stothard, G., Welwyn, Herts.
Walton, E. C., Muskham, Newark.

THE
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Editorial, Notices, &c.

OUTLINES OF BEE-KEEPING FOR BEGINNERS.

I.—WHERE BEES MAY BE KEPT, AND WHO IS SUITED TO KEEPING THEM.

1. Bees can be kept in any place where there is a small piece of garden, and fields, meadows, or heath, within easy reach, more especially near orchards and fruit gardens, or where clover, sainfoin, mustard, rape, and buckwheat, are cultivated.

2. The best spot to select for placing the hives is in a garden not far from the house, where they will be sheltered from wind and be free from disturbance by strangers, and out of the way of domestic animals. It is very important if such a sheltered place cannot be found to plant a hedge or other wind guard on the northern side of the hives; and if there are a few fruit trees about so as to shelter the bees from the fierce rays of a summer sun it would be an advantage.

3. Most persons can keep bees if they have sufficient time to spare during summer, when most of the work has to be done. Even the cottager who is at work from morning till night will be able to devote a little of his leisure time to this pursuit, which will add to his income in an agreeable manner. Any one who is sufficiently vigorous and strong, and can still lift from fifty to sixty pounds in weight, can walk without assistance, and has good eyes sharp enough to distinguish a bee's egg at the bottom of a cell, is able to keep bees.

4. The object of keeping bees is generally either pleasure or profit. If they are kept for pleasure it is better to have only two or three hives; but if profit be the object the bee-keeper should possess at least ten or a dozen hives. In either case not more hives should be kept than can be properly attended to, for one hive well looked after will make a better return than a dozen that are neglected.

5. There are some districts where bee-pasturage is so scarce that the bees even in the best seasons cannot procure the necessary stores to keep them through the winter. These are not suitable districts for keeping bees.

6. Places exposed to the wind, or on the borders of wide rivers and lakes, where there are many manufactories, such as breweries and sugar refineries, which allure the bees, who there meet with certain death, are also not suitable.

7. Those who suffer so severely from a sting as to be obliged to call in a doctor, or take to their beds, or who have not sufficient courage to bear calmly an occasional sting, or who will not attend to their bees themselves, and are not able to make their hives, or have not got the means to procure them, or will not when needed feed their bees if they are in want, had better not undertake bee-keeping. (*To be continued.*)

TEACHERS AND BEE-KEEPING.

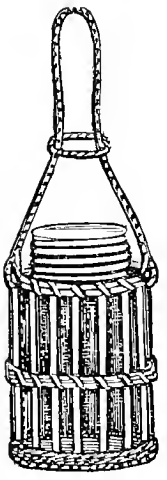
Three or four months ago we drew attention to a suggestion thrown out at the Annual Meeting of the British Bee-Keepers' Association held at South Kensington. It was to the effect that a great impetus would be given to bee-keeping if the attention of masters and mistresses of schools of various grades throughout the country were called to the subject. From altogether another quarter the idea is again brought to our notice, as will be seen from a letter in this week's issue of the *Journal*. (P. 49). A further proposal of a practical kind in connexion with the point is that 'The Teachers' Union' could be turned to good account for the purpose advocated. We entirely approve of the suggestion. Such an existing organization, if interested in the matter, would not only save much trouble and expense to those anxious to make a move in the direction indicated, but would furnish excellent opportunities for securing intelligent audiences to lecturers on apiculture.

Now in order to give new energy to the suggestion of our correspondent we would point out two or three simple matters which should at once engage the attention of the Committee of the B.B.K.A. In the first place, means should be taken to ascertain the names of schoolmasters and schoolmistresses who already possess stocked hives or are interested in the pursuit of bee-keeping. To all such an appeal might be made to do what is in their power to promote the spread of information about apiculture. Next, from among these names a selection should be made of those known to belong to 'The Teachers' Union.' These friends should be requested to try and secure the interest of the officials of the Union in their own neighbourhood.

When once the sympathies of such leading members were aroused there would be no difficulty in making arrangements for lectures, and possibly for the display of hives and honey. This last point would be certain to exert a powerful attractive influence. A third matter would be the securing of efficient lecturers or exponents of the elements of bee-keeping. This might be accomplished either by the Committee of the B.B.K.A. taking the subject in hand, or by individual and qualified members of the Association offering their services to the branch of 'The Teachers' Union' nearest their own abodes.

We have before pointed out the immediate advantages which would be gained by teachers who might be induced to interest themselves in apiculture. The importance of this point will justify a repeated reference to it. In the first place, then, bee-keeping supplies a hobby admirably adapted to those whose profession makes a severe call on physical energy, and especially on brain power. A certain amount of bodily exercise is required in attending to hives, while no exhausting toil is needed. The mental faculties are quietly and healthfully called out in devising various little expedients for making improvements, meeting difficulties, or securing the best results in honey and strength of stocks. These considerations tell with great force in the case of female teachers, and we are thoroughly convinced that an immense development of bee-keeping is yet to take place through our gentler sex. A second benefit would be the certainty that pupils of these teachers would be aroused to take interest primarily in our pet insects, and later on in natural history generally. We need not point out to our readers the humanising and elevating consequences of such results. Thirdly, a fresh link would be forged in the happy bonds existing between many teachers and their pupils; and so an indirect stimulus would be applied to those feelings of mutual regard, which go so far in lending a zest to efforts to impart knowledge on the one hand, and to imbibe it on the other. Fourthly, the giving away of sections or other small quantities of honey would often afford pleasure to the givers and receivers, and would certainly call further attention to the industrious producers of the delicious article of food. We say nothing of the profits to be derived from a few well-managed hives, though this money-consideration would be, in many instances, by no means an unworthy or futile motive for keeping bees. We repeat our conviction that the enlistment of schoolmasters and schoolmistresses in the army of apiculturists would prove an immense addition to our power. No such recruiting officers could be elsewhere secured. Each one is the centre of a company of possible additions to our rank and file. Each one possesses more than average ability and intelligence, which, if brought to bear on bee-keeping, would assuredly aid in its development. We invite them to help in an endeavour to gain our school-teachers to the interests of the good cause.

In a future number we will comment on the second suggestion contained in our correspondent's letter—the subdivision of County Associations.



NOVELTIES.

Walton's Honey Bottle.

On page 542 of our last volume we described a wicker-work covering for honey jars which was introduced by Mr. E. C. Walton, Muskham, Newark, at the Norwich Show; and we are now able to give an illustration of it which the inventor has been good enough to send us. The cover is made to suit any sized jar, and it will be seen that by slipping up the ring the jar can be easily removed for cleaning purposes.

USEFUL HINTS.

The departure of frost, with a return of mild weather, and an occasional bright day, have afforded our bees an opportunity of flight after a long confinement, and at present all colonies appear healthy and strong.

Pollen and Syrup.—Soon will the crocuses and snowdrops tempt the bees to pollen-gathering, and stimulate the queens to breeding in earnest. Then the time will have arrived for supplying artificial pollen, and for gentle feeding to stimulate to further efforts. Pea, rye, or wheat meal may be sprinkled upon the crocus blooms, and will be duly appreciated by the bees. It may also be placed in skeps or boxes, amongst shavings, and placed in a warm, sunny spot near the hives; a piece of honey-comb laid upon the shavings will soon guide the bees to the spot. A graduated feeder, in which one, two, or three holes can be used at pleasure, is best for this early season by those who follow up this practice of stimulating. For ourselves we prefer to uncap a few cells near the brood-nest, which arouses the bees sufficiently.

Taking a Peep.—To ascertain the condition of the bees, and the amount of food, gently turn aside the quilt—on a fine day *only*—and notice the number of bees crowding to the top of the hive, on the admission of light; also the quantity of sealed honey at the top of the frames.

If there are no winter passages in the combs, although the outside frames contain honey, bees will often starve from inability to reach it. In such a case feed with soft, warm candy over the cluster. A flat cake of two or three pounds, rolled in thin muslin, and pressed down upon the frames, the quilts and chaff-cushion laid upon it, and over all a board, or flat straw cover, will enable the bees to feed in comfort, until warmer weather encourages them to extend their circle to the outside combs. At present this is the only examination admissible, except in extreme cases, when indoor manipulation must be resorted to.

Small Colonies.—Small or weak colonies should be closely confined by division-boards, and fed as recommended above, with a view to union with stronger ones later on, or the preservation of their queens, which will often be found of great use when the general overhauling takes place.

Food.—For various kinds of food refer back to former 'Hints' under 'Heddon's Syrup,' 'Good's Food,' 'Frames of Honey,' &c., of which, we consider the latter, as general food, the best. It should never, however, be given when granulated, a cold slab of granulated honey-comb being about as useful as a slab of ice at this time of year. All such combs should be removed from the hives, the division-boards moved up to the cluster, and

Good's (soft) candy placed on the frames above the bees.

Cleaning Floor-boards.—As spring advances, and the bees begin to work, a change of floor-boards is advantageous. Let the hive be gently raised from the board by pushing wedges beneath, allowing it to remain in the raised position for a few minutes until the bees are quiet, when it may be placed on a clean, dry board on its former stand. When board and stand are inseparable, the hive should be removed while the board is scraped and thoroughly cleaned. If boards are separate from the hive—as we much prefer them—it is a very easy matter to slip under the hive a dry, clean board in place of the foul one.

Defunct Colonies.—When bees are flying freely it is well to watch the hives carefully and to note any showing no signs of energy or life; or when clearing entrances, if dead bees are found in numbers; in either case an examination should be made at once to fully ascertain the state of such colonies, which often will be found to have perished. These hives should be removed since they afford incentives to robbing.

Water.—Strong colonies when breeding largely during the spring months require a constant supply of water, which is best given in shallow troughs near the apiary, stones being placed in the water to prevent drowning. These should be filled up, as required, with clean water, in which a handful of salt has been mixed. Some advise a comb filled with water to be placed inside the hive, but in a large apiary the plan involves too much labour and disturbance of hives. The bees prefer to carry in water, and if it be found near home much bee-life will be saved, since many bees perish while searching for water in ditches and ponds during the prevalence of cold winds. Let the water troughs be placed in a sheltered spot with the sun full upon them. Italian bees are far more eager in the pursuit of water than are the black races, which may, probably, be accounted for by the extraordinary fecundity of their queens.

Spring Dwindling.—This searching for water is often a prolific source of spring dwindling: also too early and too frequent manipulation, and stimulation by driblets of syrup, may be placed in the same category. However prolific a queen may be, when in the early part of the spring—the breeding season—her subjects are reduced in numbers until they cover two or three frames only, it is best to unite such small colonies, for, although with care and constant attention they may be built up to strong ones by the time the autumn arrives, yet no surplus must be expected from them. The union, however, should not be made sooner than the month of April, or early May, when, by judicious feeding and the addition of a frame or two of brood from the strongest hives, populous colonies may be created by the arrival of the principal honey-harvest. There is no better rule in apiculture than that which demands that '*All colonies must be kept strong.*' Weak colonies never give satisfaction, but bring endless disappointments, causing many beginners to give up bee-keeping in disgust. Let it be remembered that in our changeable climate, even in the finest summers, and in districts where nectar-yielding plants abound, the harvest is short, and only strong colonies can yield a satisfactory return. This, of course, is taking a *honey-view*, but where the sale of bees, or queens, or general increase of colonies, is the object, a different method must be pursued—a subject which concerns the expert more than the general apiarist, and into which we shall not, therefore, enter. Strong colonies, young and prolific queens, plentiful store, a southern aspect with shelter from the north, and as little disturbance as possible, are golden rules.

Foundation.—For some years we have used in our own apiary the light, flat-bottomed wire foundation for brood combs with the best results, and on our recommendation large quantities have been sold, affording to the purchasers general satisfaction. The article is of American manufacture, and, being desirous of encouraging our own trade, we intend in future to wire the frames, and to use English foundation of a light description, since, with the heavier foundations, we have found the bees, especially in the 'honey-flow,' to leave a solid septum, indeed, scarcely to draw out the foundation at all. The small instrument introduced by Mr. Cowan at the Conversazione held at the Colinderies we find very useful in imbedding the wire in the foundation, but we are not aware who the manufacturer is, or where the article can be obtained. Perhaps the inventor will kindly say.

Hives.—Whether invertible hives will ever come into general use remains to be proved. Catering for those who believe in, or feel inclined to try, the plan, Mr. Neighbour has introduced an extremely well-made substantial hive, of four invertible and interchangeable boxes, which may be used for obtaining either extracted or comb honey, and which appears to us to avoid the objectionable points in the American Heddon hive, the walls being much thicker, and the close-ended frames being dispensed with. Perfect simplicity and a moderate price are also great recommendations.

Preparations.—Again let us advise all apiarists to have an eye to preparation for the fast approaching season.

'All things decent and in order' is the best of mottoes.

In Memoriam.

It is with feelings of the deepest regret that we are called upon to chronicle the early and sudden death of our friend and fellow-worker, Mr. Charles James Fox Kenworthy, Hon. Sec. of the Middlesex Bee-keepers' Association. He died of diphtheria, after a few days' illness, on the 26th ult., at Kerrison Lodge, The Park, Ealing, in the thirty-fourth year of his age. Mr. Kenworthy was the eldest son of Mr. James Lees Kenworthy, F.R.A.S., an old and respected resident in Ealing, and was related to Mr. C. N. Abbott, of Southall, and to Mr. Charles Atlee, a gentleman who took a deep interest in the formation of the British Bee-keepers' Association. Mr. Kenworthy's father kept several hives of bees, and from his earliest years his son imbibed a love for bees and bee-keeping. As he grew in years this love strengthened with his strength, and he became in time a very expert manipulator; and it was ever his delight to assist young bee-keepers and to impart whatever knowledge he possessed to others.

Mr. Kenworthy was intimately connected with the history of the British Bee-keepers' Association. When Mr. Hunter, who was the first Secretary of this Association, resigned his office in September 1875, he was succeeded by Mr. Cleaver, who officiated from September 1875 to June 1876, when, in consequence of his numerous other engagements, he was compelled to resign. The position of the Association was at this time very uncertain, and its finances at a low ebb. The committee of that day were highly pleased to accept the willing services of Mr. Kenworthy as Secretary, as he was known to many of them as an enthusiast in bee-keeping and well versed in keeping accounts. Mr. Kenworthy began his duties on the 15th of June, 1876, being then in his twenty-second year. During his Secretaryship the B.B.K.A. (in September 1876) held a three-days show in Alexandra Palace, in which Mr. Kenworthy had a favourable opportunity of exercising his special powers of organisation. In a great measure the success of that exhibition was due to him, and it was said on the occasion that 'his exertions on behalf of the Association were beyond all praise.' In the early part of 1878 Mr. Kenworthy, in consequence of the

pressure of other duties, family afflictions, and the unhappy divisions then existing in the Association, resigned the office of Secretary. On the 25th March, 1878, the Secretaryship was accepted by the Rev. H. R. Peel, who, by his experience, energy, and decision, placed the Association on that firm and solid basis which from that time it has occupied.

In April 1884, it was intimated to Mr. Kenworthy that the Middlesex Bee-keepers' Association, which had been recently established, required the services of a Secretary. He at once expressed his readiness to act in that capacity. The work connected with a county like Middlesex is most arduous and difficult, but Mr. Kenworthy has been unwearying in his endeavours to bring it abreast with the other successful Associations in the land. For some time he has been associated in his office with the Hon. and Rev. H. Bligh. Within the last few weeks he has introduced some new ideas into the management of the Association, and he has been working out the details of this scheme in a most masterly manner. Mr. Bligh, in a letter now before us, says, 'that ever since we struck out the idea of my being associated with him he has seemed to work energetically and to have developed great power of administration. He will be much missed in the Association, and it will be difficult to find any equal to him at the level to which he had raised himself.'

At the establishment of the Bee and Fruit Farming Company he was appointed Secretary; and at the last annual meeting of the British Honey Company he was elected its auditor.

Mr. Kenworthy's work, however, was principally among the young. He was always a boy amidst boys, participating in their joys and pleasures, and sympathising with all their cares and sorrows. He was a stanuch advocate of total abstinence during his whole life, and he was never weary of inculcating temperance principles among the youth by whom he was surrounded, and in promoting their moral and social welfare. He took a prominent part in all schemes which would beneficially employ the leisure time of his young friends; and so we find him the Secretary of Bands of Hope, the Beaver Swimming Club, the Crusaders' Cricket Club, and so forth. By his soft, winning, and attractive manners, he won all hearts, both young and old. His character was most estimable; he was amiable, genial, kind-hearted, and generous, and ever willing to assist in any work which had for its object the advancement of his fellow-creatures.

He was buried in Ealing Cemetery on Saturday, the 29th ult., a large concourse of friends and neighbours testifying, by their attendance, their high esteem for him and his life-work, and their sympathy with his bereaved relatives. We were pleased to see, among others, as representing bee-keepers, the Hon. and Rev. H. Bligh, Mr. J. Garratt, and Mr. G. Henderson.

[The writer of the above is reminded that it has been his melancholy duty, within the space of a very few years, to pen obituary notices of three Secretaries of the British Bee-keepers' Association.]

JOTTINGS BY AMATEUR EXPERT.

'Mel sapit Omnia.'

Mr. Grimshaw is at 'York' again; he means to succeed if it is to be done by wearying all parties interested by his importunity. I have a suggestion to make to him, which I hope he will be able to accept and act upon. What Swanmore is to Hants, and Hertford is to Herts, Leeds may become, in his able hands, to York, if he can only be induced to go to work. Let him ask all the clergy, &c., if they will allow him to lecture on bees in their village schools and talk to the people in simple language, taking a few simple appliances with him; and having shown them some inducements for keeping bees, give them five minutes of the wonders of the busy insects themselves, and ask them all to join a 'bee-club,' and show them what he can give them for their one shilling per annum. Mr. Huckle will give him some leaflets and back numbers of the *B. B. J.* for distribution. I am quite sure Mr. Grimshaw will gain more profit from this than he ever can by throwing stones into a pond that does not even contain a frog to croak.

Talking about croaking reminds me. I hope all those who own 'croaking' bees are satisfied with Mr. Grimshaw's excellent paper on the 'Vocal Organs of the Bee,' and that they will endeavour to notice the different 'croaks' in future, and moreover that none of them will ever 'croak' themselves.

There is one line in 'Devonshire Dumpling's' letter that will make the 'fancy dealers' close their teeth tight, I guess. It is about 'cheap appliances and low prices.' The worst thing they will wish him is that he were a manufacturer, and had to live on some of the 'fancy' profits gained from some of their wares.

The Rev. C. C. James is going to shut his stable-door now he has lost his horse. He says, 'Snow has been laying in front of my apiary for twenty-four days.' I did not allow the snow to lay in front of mine for forty-eight hours, as I went and shovelled it away, consequently I enjoyed the sight of a flight of my pets, and I don't think I lost a dozen through the snow. They brought out their dead, and I judge the flight did them no end of good altogether. Keep the ground in front of your hives rolled hard so that you can shovel the snow away when it comes, and as they say across the Atlantic, Don't you forget it!

Mr. F. C. Hodgson should have removed all traces of his old stand as far as possible and not have placed an empty wooded hive there, as he confesses he did; the board in front did not do so much harm as the 'decoy' hive, as the board probably helped them to mark their new site, but seeing a hive on their old site they attempted to enter that, and so perished.

My voting list for the Committee of the B.B.K.A. reveals the fact that we have lost the future services of Mr. D. Stewart. In losing him we lose an old and useful member whose place it will be difficult to fill. Living in town as he does he was always at hand when important work wanted doing. He worked hard at the Healtheries, and much of the success of the reception we were able to give to the Canadians, I believe, was due to his efforts. Last year he advocated reform, but now we lose him altogether. I for one am deeply sorry.

The Ontario B. K. A. had a 'rousing' meeting on January 6th to welcome home their delegates. Mr. Jones had not arrived in time; the other three, viz., Messrs. Pettit, Corneil, and McKnight, were all present, they were highly flattered by our treatment of them. They were gracious enough not to insist that their honey was better-flavoured than British, and they have great hopes, which I have no doubt they will realise, of finding a good market in England for the future. Mr. Corneil said British bee-keepers were a class of men that knew their business, and there was nothing equal to a trip to London to take the conceit out of a man—even a bee-keeper. They managed to hand over 930*l.* for their 169½ tons of honey, that they sent, after all their expenses were paid. The expenses were heavy of course, although they had a heavy subsidy from the Government, and the price realised is a fair one considering the price of honey in Canada.

Here is a wrinkle that may be of use to some one. A Michigan man found a bees' nest in the arm of a tree six inches in diameter and sixty feet from the ground; he wanted the honey, so he shot the bough off with his rifle, taking sixty-four bullets to complete the job. I confess it would have cost me a night's sleep scheming how to do it before I should have hit on that plan.—

AMATEUR EXPERT.

CANADA.

Seventh annual meeting of the Ontario Bee-keepers' Association, 1.30 p.m., January 5th, 1887, in the City Chambers, Toronto.

The President, Mr. S. T. Pettit, of Belmont, occupied the chair, and in his opening remarks stated that no doubt the production of honey would require to be very much increased to permit Canadian honey to remain constantly upon the British market, for should this constant supply fail they must expect to lose very much of the vantage-ground they would previously have secured. He would emphasise the necessity of sending only the very best honey as to colour, texture, and flavour. For extracted honey only such as had been capped by the bees previous to extracting should be produced, and for this purpose recommended the tiering-up system as allowing ample room for storing and at the same time ripening of honey. No one contended that artificially ripened honey was better than naturally ripened honey, whilst many claimed that the artificially ripened was very much inferior. The question of legislation *re* foul brood was before the Association, a committee to see railway directors about reducing freight on honey, and also to see about arranging to send honey to the British market.

Mr. J. A. Abbott, of London, England, was introduced. He was warmly greeted, and expressed his acknowledgment of his warm reception. Mr. Abbott was elected an honorary member of the Association.

Mr. J. B. Hall then stated he was one of a committee from the Oxford Bee-keepers' Association to ask the O. B. A. to seek for legislation for foul brood. At a later stage of the Convention a committee was appointed to ask the Legislature to pass an Act to that effect.

Mr. S. Corneil, of Lindsay, then brought up the proposition of asking the Government to grant a sum of money to pay the expenses of a scientific lecturer to deliver a course of lectures in Canada.

The impression was that after the late grant bee-keepers should not ask for such an outlay, and for the present the matter was dropped.

The evening session now opened. This session had been set apart in honour of the returned delegates.

Mr. S. T. Pettit addressed the meeting. He mentioned how Doctor Thom, of Streetsville, had, in his retiring address as President of the Association, pointed out the advisability of the display at Kensington, and, step by step, the work had been executed until, at the close of the Exhibition, they felt their most sanguine expectations had been realised, and Ontario bee-keepers had every reason to congratulate themselves on their success. The different characteristics of honey from other colonies were given, and in his opinion none could compete in any quantity with Ontario honey. He emphasised the necessity of sending only the clearest and best honey, and by so doing they would have a trade-mark which could not be imitated to any extent.

Mr. S. Corneil then spoke. He mentioned the mistake made by sending too large packages of extracted honey, also crates of comb honey, both for selling and exhibition purposes. They had used a very small package of tin, also in glass, besides distributing free to visitors a large quantity in 'tastes' of honey. He was satisfied with proper management Britain could consume more honey than Ontario could produce. The honey must, however, not go through too many hands.

Mr. R. McKnight then related, in his well-known pleasing strain, many amusing incidents of their journey and work. He thought much credit was due to those who had brought out their honey, not knowing what their returns would be; also to the Ontario Government for their grant, and the Dominion Government for their ever-ready and courteous assistance, also the transport lines. Mr. McKnight had a large number of letters speaking in the highest terms of Ontario honey.

A unanimous vote of thanks was then passed to the British bee-keepers for their very kind reception of the Ontario delegates, and all the attention which had been shown them.

Mr. Abbott thanked the Association on behalf of the British bee-keepers.

9 A.M., JANUARY 6.

President in the chair. A discussion upon the hive question then took place. There was a very great diversity of opinion as to the best hive. Mr. Pettit thought a frame not less than 8 inches, or more than 9 inches, would be the best, and he recommended the tiering-up system. There were some who thought a hive with comb less than 8 inches advisable, and one or two did not object to a frame a little deeper than 9 inches. The tiering-up system was recommended to enable honey to be ripened, and at the same time allow bees ample storage room.

Mr. J. B. Hall then spoke of what had been done during the presidency of Mr. Pettit, and largely through his instrumentality they had secured incorporation, a grant of $1000 to defray expenses at the Colonial, an annual grant of $500, the grand display of honey in England, and he would, therefore, ask the Association to re-elect Mr. Pettit.

Rev. W. F. Clarke objected to presidencies for more than one year.

The Rev. W. F. Clarke and Mr. J. B. Hall were also nominated, the latter, however, asked to withdraw, and when his request was not granted he asked all who wished him well to support Mr. Pettit.

Mr. Pettit was elected President, and Mr. J. B. Hall Vice-President.

The Directors were then elected, who, during a meeting after the close of the Convention, elected Mr. W. Couse of Meadowvale, Ontario, Secretary.

The utility of perforated metal was next discussed. All who had used it and knew what it was to be with and without it testified that it was a great acquisition to the apiary.

Mr. Abbott related the first experiments with it, how it had been in favour, but was now but little used; the variation in the honey flow might, however, make the difference.

The afternoon session consisted chiefly of business, and at 3.30 p.m. the Convention adjourned to meet in Woodstock the second week in January, 1888.—R. F. HOLTERMANN, *Brantford, Canada.*

ASSOCIATIONS.

CORNWALL BEE-KEEPERS' ASSOCIATION.

The annual meeting of the Cornwall Bee-keepers' Association was held on Wednesday, January 26, at the Town Hall, Truro, under the presidency of the Rev. C. R. Sowell. There were also present the Rev. A. R. Tomlinson, Mrs. Tomlinson, Mrs. Polwhele, Mrs. Hockin, Messrs. T. R. Polwhele, T. Cragoe, T. Treleaven, G. E. George, G. Gradidge, and C. Kent (hon. secretary).

On the motion of Mr. Cragoe, seconded by Mr. Gradidge, the following report of the committee was adopted:—

The committee have to congratulate the Association upon an increase in the number of members and upon having passed a fairly successful year. Our members now number 179 as compared with 160 last year, but the total subscriptions promised and received are slightly less, being 42*l.* 18*s.* 6*d.* as compared with 46*l.* 3*s.* last year. The amount not paid is 11*l.* 10*s.* 6*d.*, but the committee have every reason to believe that the greater part of this will be collected during the coming year. The visits to the apiaries of members in 1885 were so greatly appre-

ciated that the committee decided to adopt a similar course in the past year. This useful work was carried out by the Rev. C. R. Sowell, Rev. J. A. Kempe, Mr. T. Treleaven, and the Secretary. It would be a great advantage if a few of our members could gain experts' certificates to enable the committee to divide the county into districts, and so carry out a systematic visitation to all members, at least once a-year, at slight cost. The annual show of appliances was again held in connexion with the Royal Cornwall Agricultural Association's exhibition, and the St. Austell local committee made a grant of 15*l.* towards the expenses. Mr. S. J. Baldwin was engaged as expert, and the show was a most attractive and successful one, though owing to its being held so early in the season the competition in the honey classes was limited. Shows were also held at St. Germans, Wadebridge, and Fowey, but in neither case did the takings meet the expenses. At these shows the manipulation tent was under the charge of the Rev. J. A. Kempe, Rev. C. R. Sowell, Mr. T. Treleaven, and Mr. E. Gradidge, to whom the thanks of the committee are due for their kind exertions to promote the interests of the Association.

The statement of accounts showed that the assets exceeded the liabilities by 2*l.* 8*s.* 1*d.*

The Earl of Mount Edgcumbe was re-elected president. The vice-presidents were re-appointed as follows:—Hon. and Rev. J. Townshend Boscawen, Mrs. Digby Collins, Mr. T. Martin (Plymouth), Lord Robartes, Sir John St. Aubyn, Bart., M.P., and the Earl of St. Germans. Mr. A. P. Nix was re-elected treasurer, and Mr. C. Kent secretary. The following were elected as the committee:—Mr. A. Bailey, Liskeard; Mr. W. K. Baker, Towednack; Mr. J. Branwell, jun., Penzance; Mr. G. H. Chilcott, Truro; Mr. T. Cragoe, Sunset, Truro; Mr. G. Dixon, Truro; Mr. G. Gradidge, Truro; Mr. G. E. George, Probus; Mr. J. W. Harrison, Tregony; Mrs. Hockin, Flushing; Mr. J. Lander, Laveddon, Bodmin; Mr. H. B. Neame, Portreath; Mr. W. Nickell, Helland; Mr. W. Prockter, Launceston; Mr. T. R. Polwhele, Polwhele, Truro; Mrs. Polwhele, Polwhele, Truro; Mr. E. Rashleigh, Par; Rev. W. Rogers, Mawnan; Rev. C. R. Sowell, St. Goran; Mrs. Tom, Rosedale, Truro; Rev. A. R. Tomlinson, St. Michael Penkivel; Mrs. Tomlinson, St. Michael Penkivel; Mr. T. Treleaven, Creed; Mr. J. Williams, Scorrier House, Scorrier.

Votes of thanks to the Chairman for presiding and the Mayor for the use of the room terminated the proceedings.

BERKS BEE-KEEPERS' ASSOCIATION.

We give below an abstract of the Annual Report of the above Association, which was held at Reading on Saturday last. In our issue of January 6th, we had the pleasure to notice a pleasant social gathering of the members and friends in the Windsor district. We understand that arrangements have been made to hold one of a similar nature at Reading, on February 24th; and it is hoped to extend these gatherings to all the eleven districts into which the county has been divided, thereby enabling its members to talk over bee matters, and take counsel with each other for the coming season. Arrangements have been made by the Berks B. K. A., in connexion with the Hants and Isle of Wight B. K. A., to take charge of the bee department of the Royal Counties Agricultural Societies' Show to be held at Reading in June next. A show will also be held at Windsor in connexion with Prince Consort's Association, in which Her Majesty takes so great an interest, besides shows in other parts of the county.

The Committee beg to present their Seventh Annual Report to the Members, and to congratulate them on the strength of the Association—there being now 266 members on the list, conclusively proving that its advantages and privileges are being appreciated, and that the Association has been enabled to spread and encourage modern bee-keeping among a larger circle and over a wider area. This increase has been largely due to the adoption of the District or Branch system, which has been very successfully at work during the past year. The thanks of the members are due to those gentlemen who have so kindly undertaken the duties of District Honorary Secretaries, for their earnest efforts on behalf of the Association. There are still wanting Hon. Secretaries for the Abingdon, Bradfield, and Maidenhead Districts.

Among the chief features of a very active year's work was the Great Exhibition of Honey, &c., held by the British Bee-keepers' Association at South Kensington, from July 30th to August 5th, and it may safely be said that on no previous occasion has there been brought together such a magnificent display, notwithstanding the fact that the honey season had been but an indifferent one. On the invitation of the British Bee-keepers' Association, your Committee decided to take part in the County Competition, and sent out a circular asking members to contribute to the display, which was responded to by the following:—Messrs. Bowly, Bunce, Champion, Clegg, Coombes, E. Cooper, G. M. May, Miller, Rayer, Reeley, Whittle, Wright, W. Woodley, and Woodley Bros. The Committee were enabled to stage upwards of half a ton of honey and wax on the Berkshire stand, proving that the County can hold her own in the bee-keeping world.

The Annual Show was held at Reading, on August 26th, when the Corporation kindly granted your Committee the free use of the Abbey Ruins, and the Reading Horticultural Society allowed their large tent to be used on the occasion. This was one of the most successful shows ever held by a County Association, and almost the first that has been held independently. The classes for honey, wax, hives, &c., were well filled. Class 14, for recent inventions of service to bee-keeping, and Classes 15 to 20, for honey in its applied form, were particularly noteworthy. The prizes were kindly distributed by Mrs. Murdoch. The Silver Medal of the British Bee-keepers' Association was won by the Rev. R. Errington; the Bronze by W. Woodley; and the Certificate by Woodley Bros. The judging, which was a very arduous task, was ably carried out by the Hon. and Rev. H. Bligh, Rev. J. L. Seager, and Otto Hehner, Esq., F.C.S., F.I.C. The bee tent was a source of much interest, and the driving competition by amateurs was well contested. The show was visited during the day by upwards of 3000 people.

Very successful shows have been held under the auspices of the Windsor Branch, at Clewer, on August 2nd, in conjunction with the Clewer Horticultural Society; and by the Faringdon District, in conjunction with the Faringdon Horticultural Society.

The *Bee Journal* has been circulated among most of the members, and under the new system adopted this year, considerable improvement has been apparent, but with the more rapid issue difficulties continue to arise by members detaining it more than the allotted time.

Most of the members' apiaries were visited by the expert at the commencement of the season. He reports that, owing to the late spring, bees were in a very backward condition, and, in consequence, the honey yield must be considered below the average.

The bee tent has been of much use at the various local shows, viz., Henley-on-Thames (in conjunction with the Oxfordshire Bee-keepers' Association), Reading (twice), Whitchurch, Steventon, Shiplake, Windsor, Easthampstead, Bradfield, Winkfield, Abingdon, Faringdon, Maidenhead, Remenham, Wokingham, and Waltham-St.-Lawrance, when lectures have been given on practical bee-keeping, by Messrs. A. D. Woodley, Fewtrell, Webster, and Cobb.

In June of this year the Royal Counties' Agricultural Society will hold their Annual Show at Reading, when your Committee propose to unite with the Hants and Isle of Wight Bee-keepers' Association in a joint Show. To make the Bee Department a success, members are asked to kindly be prepared to exhibit and otherwise support the Committee.

With great regret the Committee have to announce the resignation of the Hon. Secretary, Mr. Bowly, who has ceased to reside in the county, and is at too great a distance to give the necessary personal attention to the duties. The thanks of the members are due to him for the vast amount of time and labour he has devoted to the interest and welfare of the Association; his duties have been ably carried on by Mr. A. D. Woodley. The Association have also lost the services of Mrs. Curry, and Mr. W B. Kingswood from the Committee.

The Committee regret to have to present you with a Balance-sheet showing a deficit, but this is more than met by arrears of subscriptions and outstanding accounts.

HUNTS BEE-KEEPERS' ASSOCIATION.

The annual meeting of the Huntingdonshire Bee-keepers' Association was held in the 'Fountain' hotel at Huntingdon, on Saturday, January 15th. The President, the Earl of Sandwich, was in the chair, and the members present included Col. Marshall, Rev. H. S. Budge, Rev. C. C. James, Mr. T. Coote, jun., and Messrs. C. N. White, J. H. Howard, A. Childs, E. Allen, Z. Hobbs, &c., &c.

The first business was to present the balance-sheet for the past year. This showed a deficit of *5l. 3s. 4½d.*, the receipts being *18l. 16s. 6d.* and the expenditure *23l. 19s. 10½d.* The Secretary (Mr. C. N. White) then read the annual report. Lectures had been given at Hemingford Abbots and at Offord Cluney, and from both of these places new members had been promised for the ensuing year. The bee-tent was erected at the annual show, and addresses were then given to large audiences by Mr. J. H. Howard and the Secretary (Mr. C. N. White). At the annual show held at St. Ives on August 5th. the B.B.K.A. silver medal was awarded to Mr. T. Cook of Yaxley, the bronze medal to Mr. J. H. Howard, jun., of Holme, and the certificate of the Association to Mr. J. H. King of Holme. The report and balance-sheet were adopted upon the motion of Col. Marshall and the Rev. H. S. Budge.

Lord Sandwich accepted again the office of president. Captain Fellows, M.P., Mr. F. R. Beart, Captain Duncombe, Lord Esme Gordon, Lord Douglas Gordon, and Messrs. H. Goodman, A. W. Marshall, A. Sperling, C. P. Tebbutt, A. J. Thornhill, W. Wells, T. Coote, jun., and Mrs. Puckle, were elected vice-presidents; Rev. C. G. Hill, Mr. J. H. Howard, Rev. J. Jickling, Mr. J. Linton, Rev. N. Royds, Mr. G. J. Rust, Rev. C. C. James, and Messrs. F. B. Thackray, A. Sharp, B. Bull, Z. Hobbs, A. Childs, and E. Allen, were elected Committee; Col. A. W. Marshall treasurer; and C. N. White secretary. Mr. J. Linton and Mr. J. H. Howard were appointed to represent the Society at the quarterly meetings of the British Bee-keepers' Association.

The Earl of Sandwich moved that in future the members of the Society should be divided into two classes—cottagers and amateurs; and that, in order to prevent the bulk of the prizes falling into the hands of two or three individuals, no member should be permitted to take more than one first and one second prize at any competition. This was seconded by the Rev. H. S. Budge, and unanimously adopted.

The meeting concluded with a vote of thanks to the Earl of Sandwich for his services as chairman.

HANTS & ISLE OF WIGHT BEE-KEEPERS' ASSOCIATION.

Swanmore Branch.

A committee meeting of the above Society was held on Tuesday evening, January 25th, 1887, at Swanmore Vicarage; when there were present the Rev. W. E. Medlicott (in the chair), Miss Medlicott, Miss Myers, and Messrs. C. Martin, E. Ainsley, G. Horner, and H. W. West (Hon. Secretary).

The hon. secretary said that he had called the meeting to consider the advisability of holding a series of lectures in the villages comprising the district; he stated that he was himself most strongly in favour of the scheme, as from his experience of last year, not only were the lectures then given well attended, but that many people who then knew nothing whatever of bee-keeping, were now, through hearing those lectures, bee-keepers. The hon. sec. also said that the number of new members gained at those lectures more than paid the expense of them.

A discussion then ensued, the Rev. W. E. Medlicott, Miss Myers, Mr. C. Martin, &c., taking part in it. The Rev. W. E. Medlicott expressed himself most strongly in favour of the lectures being held, and also kindly offered to give two of the series. Mr. C. Martin followed, to the effect that he was sure the lectures were a means of doing good work amongst the poorer class, and rightly mentioned that that was the class which they wanted to reach; in concluding, he also said that he would be happy to help the hon. sec. by taking one or two of the lectures. The hon. sec. thanked both these gentlemen for their kind offers, and the meeting closed with a vote of thanks to the chairman.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Upper St. Martin's Lane, London, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. Huckle, *King's Langley, Herts (see 2nd page of Advertisements).*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

TWO SUGGESTIONS.

[798.] With your permission I should like to offer two suggestions for the consideration of your readers in general, and of the Committee of the B.B.K.A. in particular. I have been examining the Rev. F. G. Jenyns' *Book about Bees*—a most interesting book—and I have been thinking two things which I hope every teacher in the country will do. I can conceive no hobby which a teacher can follow which is at once so pleasurable and profitable as bee-keeping. Even our lady teachers might take it up. All would find in it wholesome relaxation for both mind and body, and any one fond of using tools could, perhaps, make a hive or two.

Many teachers keep bees, but many do not. How shall we induce them to do so? Well, the Teachers' Union includes more than 300 local associations, whose meetings are held in some school, monthly, bi-monthly, or quarterly. Could not some of our experts be sent to address each of the County Associations upon the subject of bee-keeping once during the coming season? The dates of meetings could be obtained from the local secretaries, whose addresses would be found in the Annual Report of the Union. I think many would be glad to hear about the subject. Last year I addressed

the members of one Association upon bee-keeping, and by the time this appears in print shall, I hope, have brought the *Book about Bees* under the notice of the members. I made, at least, one convert. I forgot to mention that meetings are held generally on Saturday afternoons, and that the Union numbers about 13,000 members.

My second suggestion is this. Our County Associations are not able to do so much as I think they might, because they embrace too large an area. Why not follow the example of the Teachers' Union, and have *district* associations, each with its honorary officers? The meetings might be held in some school, the use of which most school managers would readily grant for so useful an object. The teachers would, if bee-keepers, be pleased to act as local secretaries, at any rate, for their own parish, and the Association would be more *in touch* with its members. The cottagers would, perhaps, be more easily reached by this means.

If you, Mr. Editor, will kindly allow these suggestions to be discussed—if they are deemed of sufficient general interest to be discussed—in the columns of the *B.B.J.*, perhaps some practical result may follow? Such, at any rate, is the hope of—A Worker.

JUDGING APPLIANCES AT SHOWS.

[799.] Most of us will remember that when the great annual bee-shows were being held in various parts of the kingdom during the past summer, the decisions of the judges called forth rather severe comments from several, both exhibitors and non-exhibitors. It is not my desire to rekindle a phase of the subject which is happily now laying dormant, but to suggest what I hope will prevent a repetition of some of the anomalies then complained of. Undoubtedly the judges have far too much to do in a given time. The amount of work involved in doing justice to our large classes of appliances is equal to the work expected of the agricultural-implement judges at the Royal Agricultural Society, and similar shows; and yet we expect two, or three men at most, to do the work of ten or a dozen. Consequently many of the newest appliances do not get sufficient attention, exhibitors especially stay away, at least until they have forgotten the disgust with which they left the last show at which they exhibited, and bee-keepers generally do not attach as much value to the awards as they would if those awards gave more satisfaction when made. To increase the number of judges is not practical on the score of costs: moreover, outsiders would be rather amused at the sight, so that all thoughts of reform in that quarter had better be abandoned at the outset. Possibly it would be wise to select the judges from a wider area; but this by the way.

The next best remedy I have to suggest is on the lines of what was commenced at the spring quarterly conversazione of the British Bee-keepers' Association last year. Appliances were brought to that meeting and discussed, and a vote taken as to their utility. At the last Conversazione, held on January 19th, of this year, the vote was dispensed with, and I think wisely, because that vote was not binding on the Committee of the B. B. K. A. to grant a certificate of utility, consequently it might lead to disappointment and unpleasantness. But I think those who bring out new appliances from time to time might well be encouraged to bring or send them to the Conversaziones and get the members there assembled to discuss them, and the new points in the various appliances should be recorded to the credit of those who first exhibited them, subject of course to the protest of any who may be able to prove priority. This will probably prove the most fruitful source of any trouble there may be in my scheme, but something of this kind may well be recognised amongst us, as we do not as a rule go to the Patent Office; and I much doubt if anything appertaining to bee-hives could ever be granted a patent 'that would hold water,' but the fact of our avoiding the Patent Office need not prevent us from doing justice to any one who had applied a new idea to bee-appliances, by withholding the credit of the same from any exhibitor who may have pirated another's ideas.

The next requirement is a Standing Committee of members of the B. B. K. A. for appliances only. Its members need not be chosen exclusively from those fifteen overworked gentlemen that compose the General Committee of the B. B. K. A., although those who usually act as judges at our great shows should of necessity be on it. The duties of this, which we will name 'Appliance Committee,' should be to thoroughly overhaul the new appliances that may be submitted from time to time, and award certificates to those of sufficient merit. Then when these various articles already certified as containing merit are brought together at the great shows, the duty of the judges would be to define the degrees of merit in each case and make their awards accordingly. A silver medal, awarded after such an ordeal, would be far more valuable in the eyes of manufacturers and bee-keepers generally, and we should get the award of one set of judges at one show reversed by another set at another show less seldom than at present; competition in ideas and workmanship would be more spirited, and judging would be done with greater care.

What I should wish for, above all things, is to see this well discussed by those most interested: as a rule we are far too apathetic in everything except grumbling. Some of my remarks may seem like reflecting on those gentlemen who undertake the duties of judges from time to time, I need scarcely assure them I give them every credit for doing their best; what I desire is, that their best efforts may for the future give satisfaction. — Amateur Expert.

YORKSHIRE ASSOCIATION.

[800.] I see by your show announcements that the Yorkshire show is announced to be held at York in August. Now, I hope that the show, and especially the bee-department, may be a success, and I trust that the bee-keepers of Yorkshire will do all they can to make it so. I also notice that the Hon. Secretary resides at Poole, which is only a few miles from Horsforth, so that I was rather surprised that Mr. Grimshaw was not acquainted with him. Now, I think that if Mr. Grimshaw and the Secretary would co-operate, and use their best endeavours, they would greatly improve the exhibition, and also the Yorkshire B.K.A., which, there can be no doubt, requires improvement. We should be pleased to see Yorkshire enter the county competition at the B.B.K.A.'s annual show, as I feel confident that there are many practical bee-keepers in Yorkshire, and I think Yorkshiremen would prove bad to beat.

Mr. Editor, I must not trespass too much upon your space, but I cannot close this without another word to the Yorkshire Association, which has been somewhat like the fat boy in Pickwick, doing its work and going about half asleep; but let it wake up with the present year, as there is a great deal of work to be done, and let it be done in a manner worthy of our grand old county, and then it will be a pleasure to belong to the Yorkshire B.K.A.—A. Woodhead, *Goole*.

THE HEDDON HIVE.

[801.] I have just seen your issue for January 6th, and am very pleased to find our old friend James Lee coming to the fore again. I am also glad to be able to confirm all his statements with reference to one-piece sections, &c. As I was one of the few bee-keepers who took special notice of the machine referred to, I can

perhaps throw some light on the reversable hive and its application to practical bee-keeping. In nearly all my conversations with bee-keepers on this side the question of the Heddon hive has turned up, and, excepting in the case of those most interested in its sale, the verdict has been invariably against it. At the Ontario Convention the opinion of the meeting as to the best hive was asked; and though many practical honey-raisers spoke on the subject, no one mentioned the Heddon, or owned to using a reversing hive of any kind; and on the matter being put to the vote, the meeting was almost unanimously in favour of the Langstroth. I am further able, through the courtesy of Mr. Aspinal, editor of the *Bee-keepers' Magazine*, to give an extract from a letter which will appear in the February number of that journal, from the pen of the Rev. W. F. Clarke, the chief, if not the only disinterested advocate of the Heddon hive in this country. He says, in reply to another correspondent, and referring to the half bee-space, 'I visited Mr. Heddon on my way to the North American Bee-keepers' annual meeting in October, and he distinctly told me that he never claimed to have that feature patented. Moreover, he thought so little of it that he meant to cease using it.' And further, 'It is a mistake to suppose that ease of inverting is the main feature of this hive; it is not. I see no need of inverting the brood frames more than once, the object being to get the comb built out evenly and fully. With such shallow frames even once inverting is not always necessary. I judge from my own experience, and from conversations with Mr. Heddon and his assistants, that the inversion of the section rack is unnecessary, and often inadvisable.'

Mr. Clarke mentions the many advantages possessed by this hive, but he does not give one which was not also common to the old Carr-Stewarton, and almost equally so to the Woodbury, or any other frame-hive. I have it also on good authority that Mr. Heddon gave it as his opinion that the mere making of hives 5 inches deep would not be any infringement of his patent. Where then is the valuable part of his 'invention?' He disclaims and abandons the half bee-space, does not think much of the reversing, and claims nothing for the shallow boxes. I hope some one will enlighten us upon this. I shall look with interest at the future numbers of the *Bee-keeper's Magazine*.

By the way, many of us might take that little monthly with advantage. It is 'well gotten up,' and costs only twenty-five cents per annum—1*s.* 1*d.*—which low price is making it popular. Its circulation is about 9000.—J. A. Abbott, *New York, January 18th*, 1887.

SIMPLICITY IN FEEDING.

[802.] In addition to the method lately explained, there are others which suggest themselves in cases of emergeney for early spring feeding. Where a colony has been found short soon after mid-winter, I have given lumps of granulated honey placed upon the bare frames, and so kept them along until syrup could be fed with safety.

At other times, rather than break open the cluster, a frame of sealed stores has been laid on the top-bars and all covered up warm. Certainly the comb is cut about more than when inserted below, but then in cases of this kind we are fortunate in being able to save the stock, and there is a great advantage in thus placing the comb of honey, as it is within easy reach of every seam of bees.

A note of warning here may not be out of place. If colonies have died from any cause, and stores are carelessly left in the hive, the other bees will find it out as soon as a few warm days come; and in carrying that little honey home to their own hive much needless loss of life will occur, just at the time when every bee should be restrained from flying as far as possible.

In like manner out-door feeding is very injurious, unless in skilful hands, and even after the hives are well populated with young bees, the practice is liable to lead to serious loss of strength.

Several correspondents wish to know if the Porto Rico sugar may be placed over the feed-hole in first thicknesss of material laid on the frames. Using it in that manner has proved quite satisfactory to myself; but the hole must be immediately above the cluster, and to prevent the closing of so small a space by pressure from above, a piece of wood 6 inches long by 1½ inches deep should be placed close to the opening before arranging the sugar.—S. Simmins.

INVERTIBLE HIVES (793).

[803.] In my remarks (778) I ventured to state it as my opinion that 'a friendly discussion on the advantages or disadvantages of this hive and system in the *Journal*' would be the means of obtaining information useful to those who wish to be careful how they discard their present hives and appliances before rushing into the trouble and *expense* of purchasing others, however much they may have been cracked up by those who, themselves, have had to admit that they are, at present, for all practical purposes untried, either for wintering or honey-getting. I had hoped that this suggestion would have elicited the attention of some of our many practical and experienced bee-keepers, whose names alone would have been a guarantee for the soundness of their opinions and advice, whether for or against this or any other particular system or theory in connexion with bee-keeping.

'Devonshire Dumpling,' who may for aught I know be one of these, prefers to give his ideas under an assumed name, which many will think somewhat detracts from their value, writes: 'I beg to say I have tried them with several hives this season, and all gave me nearly double the amount of sections,'—I presume he means double the amount of sections that other hives gave that were not inverted.

It is no uncommon thing in some seasons for different colonies in an apiary, in similar hives, and under precisely the same conditions, so far as we know, to give us double the amount of honey that others do, whether we are working for comb or for extracted honey; therefore, as 'Devonshire Dumpling' says, 'I having tried several' (hives) 'claim a right to say it is a good plan.' I think we may fairly ask him to give in the *Journal* more detailed particulars of his experience, the conditions under which the comparison as to the yield of honey was made, the total number of colonies in the apiary, the number of those inverted, the ages (approximate) of the queens, description of the hives that each was in, the number of swarms from each inverted or other hive, and the number of sections or pounds of extracted honey, and other information he may be able to give, will, I am sure, be most interesting to your readers.

It would almost appear unnecessary for 'D. D.' to try the Jones-Heddon hive, as the invertible hive he has used gives 'nearly double the amount of sections' of his ordinary hives. Surely he cannot hope to do more than nearly double his *crop* by the use of a particular 'cheap' hive.

However cheap invertible hives can be obtained, you, Mr. Editor, will, I think, agree with me the time is not yet come for 'the cottager bee-keeper to try it.' What is required for the cottager, and what can now be obtained from most or all British manufacturers of hives, is simply a hive with standard frames and walls at least ¾ inches (not ⅝ inches) thick, enough to stand exposure in our damp and variable climate, having a proper projecting roof or cover.

Competition has brought the price of hives down, and

it is only by the use of machinery and the quantity sold that there can be any profit; and I am convinced that the British hive-maker can hold his own against all the world if sound workmanship and finish are taken into consideration.

To be cheap a thing must be what it professes, well made, suitable to the conditions and purposes for which it is intended, otherwise it is '*dear at any price*,' however small.—JOHN M. HOOKER.

INVERTIBLE HIVES (793.)

[804.] The 'Devonshire Dumpling' has entirely misapprehended my views as to invertible hives. I simply advised that caution should be used, and I still think it will be wise for bee-keepers to pause before going largely into inversion of hives. Nothing I have written justifies the assertion that 'I seem very strongly to object to invertible hives.' So far from my condemning invertible hives, I have designed a hive and frames complete, which I think will favourably compare with the cheap hives of which 'Devonshire Dumpling' speaks. These hives can be used as invertible hives, or not, at the pleasure of their owners. The improvements in construction embrace every requisite of a modern hive, and I am bold enough to say that the method adopted is a step forward in several details that have hitherto been done in a crude and makeshift manner at the best. I am patenting this hive, and I hope shortly to have the unbiassed opinions of reliable apiarists on its merits.

I read with astonishment 'Devonshire Dumpling's' advice to cottagers, to try the Jones-Heddon hive. Surely it requires no argument to prove its utter unsuitability to the cottage bee-keeper, seeing more skill and judgment is required to manipulate this hive successfully than any other in use at the present day.

With regard to 'Devonshire Dumpling's' experience in inverting, I would remark that facts stated under a *nom de plume* lose half their value. I, for one, am anxious for information, and ask 'Devonshire Dumpling' to give us further particulars of his management. The expression used of having 'tried the inversion of several hives this season' is a loose way of putting it, and what would be preferred, I apprehend, is something more than such an unknown quantity.—JAMES LEE, *January 22nd.*

INVERTIBLE HIVES.

[805.] Whilst all our inventors are busying themselves over new designs for invertible hives I take this opportunity to warn them off my latest invention—the grandest and most decided advance in bee-culture of modern times. Even if scouted by an unsympathetic public I look to a grateful posterity to erect a statue (wax) in my honour. It is such a great and well-known advantage to be able to reverse the hive at any and every time and renders the bees so comfortable and contented that I propose at once making a hive to have every facility in that direction. It will be constructed with circular frames fixed to an axle passing through the centres, the body of hive to be cylindrical and to be half inch wider in inside diameter than the outside of frames, a portion of the top staves being removed to allow of a section crate above, the said section crate to be either fixed or revolve separately. The brood combs when finished will resemble cart-wheels revolving in a barrel with a hole up top for the bees to get into the sections, the centres of frames being connected to a handle outside. It will be among other advantages: 1st, A great novelty (this is enough alone to command an enormous sale). 2nd, The immense saving of labour to the bees in having the honey just collected and stored at bottom of frames carried upstairs by revolving the handle, and a fresh set of cells brought down handy for the field bees; I do not think it necessary to be *constantly* inverting it—perhaps for a man with but little spare time once every ten minutes would be often enough. 3rd, A great inducement for the queen to lay eggs when she comes unexpectedly upon empty cells which she distinctly remembers filling a few minutes before and thus be stimulated to renewed efforts. To enumerate all the advantages would, I fear, cause our courteous Editor to hint about advertisement columns, so I must conclude with an appeal to the honour of brother bee-keepers not to appropriate my idea, as the doctors—I mean circumstances over which I have no control—prevent me from taking out a patent in—COLNEY HATCH.

FOUL BROOD.

[806.] Just a few lines in reply to Mr. Ward. He says he has no agents recognised or otherwise. I don't know where I said that he had, in fact, I don't know what he sells.

Mr. Cheshire's cure did not fail with me because I gave it to them *four times stronger* than recommended, as it was quite the reverse of that. That sentence should have been 'reduced four times below the strength recommended,' but by some means the word 'below' was omitted. I don't know whether the mistake was mine or the printer's, but even then I don't see how he manages to make it stronger by reduction; but I suppose in these days of inverted hives, he thought he would invert me. Perhaps I went too far in saying that all agree that the Cheshire formula is too strong, but even Mr. Ward recommends giving it to the bees in small doses.

Inverted again, killed the bees, and then could not cure foul brood, but now we have it ammonia's the thing; take out a patent, Mr. Ward, as there is plenty of that about, but not where that lot of bees went to. I am sorry that I cannot tell him how to distinguish a diseased queen from a healthy one, but if he wants to requeen any of his hives I should advise him to get his queens from an apiary that he knows to be clear of foul brood.

Thanks, Mr. Editor, for your footnote to your last letter, I am in hopes that the correspondence will do some of us afflicted ones good.—MAN OF KENT.

HIVES PATENTED IN THE UNITED STATES.

[807.] Your readers may not be aware that the specifications of patents taken out in all countries where there is a patent law are filed and can be inspected in the library at the Patent Office, Chancery Lane, without payment of any fee, simply by signing your name and address in a book as you enter. There is also a library of the scientific books of all countries.

After the little business I had at the Patent Office this week was done I amused myself looking at the places and specifications of some of the American bee-hives. Seeing from the general indexes the great number of hives that had been patented in the United States I thought it might be of interest to your readers to know the number of patents taken out under the heading '*bee-hives*,' not including extractors, feeders and smokers, &c., and I counted up the numbers, which are as follows:—From the commencement up to the end of the year 1873, 591; 1874, 22; 1875, 17; 1876, 22; 1877, 33; 1878, 33; 1879, 18; 1880, 12; 1881, 10; 1882, 8; 1883, 16; 1884, 8; 1885, 20; part of 1886, 6: total, 816.

You will see that the year 1886 is not yet completed, but up to the latest returns the enormous number of 816 patents have been taken out for '*bee-hives*.' I examined about thirty of the most recent ones, and I should much like those gentlemen who consider that we get all our best ideas from America to spend a day there in search of ideas worthy of imitation, and I feel convinced that whatever their opinion of the superiority of American

appliances had previously been he will go away surprised to find that any one would ever patent the rubbish he sees illustrated and described there. Upon inquiry of a patent agent, I find a patent costs more there than here, since the alteration of our patent law.—JOHN M. HOOKER.

Echoes from the Hives.

Honey Cott, Weston, Leamington, January 19th.—After such a long spell of cold weather we have had a grand change, and such a time for the bees to fly; there was no mistake about their enjoying it, after being cooped up so long. As there was such a lot of snow lying about among my hives, I had to put straw down to save the bees from settling on it to their destruction. *January 20th.*—On looking over some hives to-day, at dinner-time, with the sun shining bright and warm, the pleasant hum of the bees was very enjoyable after such severe weather; bees on the whole look bright and healthy. *January 25th.*—Another nice mild day, bees flying in great numbers. *January 26th.*—Such a lovely day! I took advantage of it, and had the afternoon to look over my stocks, and found four lots that had lost a good number of bees (bad management); but I excuse myself on the plea that I had not time or a chance to see to them; a couple of stocks had dysentery very bad; found all other stocks in fair order; had quite a job in drying quilts, &c. *January 27th.*—Sun shining very warm again, birds and bees singing away, hope we shall not have a pinch for it. *January 31st.*—A very nice day again, bees fetching water, showing they are making a move for breeding, &c.—JOHN WALTON.

Tref Eglwys.—Bees here had first flight on 20th January. They were unable to fly from 12th November to 29th January. To-day, 29th January, first pollen gathered. Leg of one pollen-gatherer sent to editor with this note.—T. BONNER CHAMBERS, F.L.S.

South Cornwall, January 25th.—It is long since I sent forth a sound from these parts (in this column at least). Like many others, I suppose, there has been little or nothing to report. The weather has not been so severe as in some parts of England, but we have had an unsettled and uncomfortable winter. Yet bees have flown at intervals. Many are out to-day, and I have had the opportunity of taking a peep at some of them. I perceive that five stocks are well supplied with sealed stores till breeding sets in at any rate, and I expect that nine others are equally well off. I am sorry to say that I know of two small stocks starved to death for want of judgment. But 'live and learn,' only in the process the bees do not do the former. In your last number you mentioned the use of crown-boards. I have used them (in five slips) for years a-top of some of Lee's hives, which stand well. They have their uses. They make a snug cover for winter, and enable you to close a portion of the top of the hive when repairing, say, towards the close of the season, with a single Benthall crate. But the disadvantage for winter work is this, that if they lie next the hive you cannot well inspect at this season without a jar, therefore put down a cloth first, and, if you like, your slips on top of this. So I see the top-ventilation theory is being given up. I don't wonder at it. I remember years ago mentioning to Mr. Abbott how inconsistent it seemed to me with the determined practice of the bees to propolise every crevice.—C. R. S.

Loughbrickland, Co. Down.—This parish lies high, from 400 to 500 feet above the sea. The few bee-keepers in it find it well suited for producing honey. All stocks that were properly prepared have wintered so far well, and are fairly strong. Since the snow melted the bees have had several cleansing flights.—H. W. LETT, M.A.

Replies to Queries.

**** In their answers, Correspondents are respectfully requested to mention in each instance the number and the title of the query asked.*

[774.] *Separation of Wax from Pollen, &c.*—Like your correspondent 'A. S.', I have been perplexed in the separation of wax from all refuse, but now I find it is easily separated by a wax-extractor that is within the reach of every cottager, invented and made by myself, and the price would be complete, 3*s.* 6*d.*, or a cheaper one still without a receptacle for the wax for 2*s.*; but a basin will answer this purpose. I have lent mine to several bee-keepers in my district, and they say it is a great boon, as there is no mess and no time wasted and extracts every particle of wax from any old combs, cannot get out of repair, and will last a lifetime.—WM. KILLICK, *Sandhurst.*

NOTICES TO CORRESPONDENTS & INQUIRERS.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

W. G.—*Uniting Queenless Stock when Frames are not interchangeable.*—See reply to H. T., page 41 current volume.

INQUIRER.—The *American Bee-keepers' Magazine* may be procured through Mr. Huckle, Kings Langley, Herts.

JOHN RICHARDSON. — *Non-swarming.* — Consult Simmins's *Non-swarming System as applied to Hives in Present use.*

BEESWING.—*Distance of Combs.*—The distance, by actual measurement, from centre to centre of naturally-built combs is $1\frac{9}{10}$ inch, and that is the distance preserved by properly constructed metal ends. If you wish to reduce the space it can be done by putting ends on alternate frames only.

J. P.—The comb forwarded is not affected with foul brood. The brood has been chilled and dried up. It is difficult to say what has been the cause of the decay of the hive. Probably the queen has died, the bees have been unable to raise another in her stead, and they have gradually dwindled away.

GEN. B.—1. *Utilising Sections for Feeding.*—If you have a stock in a frame-hive short of food you can hang the sections in a frame, tying a string round them if they do not fit well. Uncap them, warm them, and place them within the divider, crowding the bees by removing outside combs. You can give sections to bees in skeps by placing them over the feed-hole and covering up, but at this season candy or dry sugar is better; in either case remove the sections when the honey is cleared out and give others. 2. *Sugar for Dry Feeding.*—Porto-Rico.

CONSTANT READER.—1. *Uniting.*—Wait for a few weeks until the weather is warmer and the bees more active. Meanwhile, get the two stocks together by moving one, or both, not more than a-yard a-day, only counting such days as the bees are flying freely. If they are short of food you can give some combs from the stocks you found dead with plenty of food—provided, of course, they did not die of disease. To unite, if in frame-hives, open out the frames of one and place the others between them alternately; if in skeps drive both, mix, and return to the combs. 2. *Robbing.*—You had better remove the honey from the dead stocks—robbing, when once set up, is difficult to stop.

S. G. F., *Hornsey.*—1. *Size of Floor-board.*—The position of the floor-board is quite correctly shown. It is the size of the outer casing, and answers as a support both to it and the hive which is placed inside. 2. *Spring Feeding.*—It is impossible to say how long you must feed the bees when you first have them, but you must occasionally examine the hives, and if the bees are not bringing in sufficient to supply their requirements they must be fed until they do. 3. *Number of Frames.*—Twelve frames would not be too many in an Abbott hive, but they must only be given to the bees gradually as they need them; there should never be more frames in the stock hive than can be covered by the bees. 4. *Distance of Baskets from Spindle in Extractor.*—We think four inches too close, and have found five inches the nearest that the cages can be brought to the central spindle without considerably diminishing the extractive power.

PUTTING SWARMS TOGETHER.—Will Mr. A. J. H. Wood tell me how to put two swarms together if they don't swarm on the same day? When I attempt this they fight dreadfully with great loss of bees.—BEESWING.

SIZE OF EXTRACTOR.—Will any reader of the *Journal* inform me what extractor will suit best for a small apiary? I have five hives, and some of the frames are larger than others. The largest size is 13½ inches long by 10½ inches deep, the top bar being 17 inches long.—W. M.

We much regret that, through want of space, we have been obliged to postpone the appearance of the Discussion on Mr. Grimshaw's paper.

Show Announcements.

Giving Name and Address of Secretary, Date and Place of Show, Date of Closing Entries. Terms: Three Insertions and under, Two Shillings and Sixpence; additional insertions, Sixpence each. No charge made to those Associations whose Shows are announced in our general Advertising Columns.

July 11–15.—Royal Agricultural Show at Newcastle-on-Tyne. Entries close May 12. J. Huckle, Kings Langley.

August 3–5.—Yorkshire Agricultural Society at York, Secretary, H. L. Rickards, Poole, near Leeds.

Business Directory.

The Name and Address and Business of any Manufacturer will be inserted in this List, under one heading, for One Pound per annum. Additional headings, Five Shillings extra. Advertisers in 'THE BEE JOURNAL,' whose orders amount to Five Pounds per annum, will be inserted Free.

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THE
BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, St. Martin's Lane, W.C.'

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Editorial, Notices, &c.

DISTRICT ASSOCIATIONS.

In our last issue we noticed one or two suggestions made in a letter from a correspondent ( ); and we promised to say something this week about the second of his proposals. This related to the formation of branches or district Associations of the County Associations. It is somewhat remarkable that a practical emphasis to this idea was given by the report of one of our most flourishing Associations, which appeared in our columns last week.

Now, we who are bee-keepers, and who wish to make our own views widely prevail, may learn a lesson from political workers. Their watchword is, 'Organize, organize, organize.' The loss of most elections on one side or the other is put down to the want of organization; and most victories are hailed as evidence of what can be done by organization. So far as truth lies in these assertions, all that it amounts to is that to push a cause you must have plenty of people interested in the cause—interested so as to work for it—working for it systematically. Let us, then, see how far these requisites will be secured by the formation of a number of District Associations of bee-keepers.

Our first point is to secure numbers to show an interest in the subject of apiculture. There are, happily, now thousands throughout the country who keep bees, and who manage them in an intelligent manner. Many of these also, we are glad to know, are members of our various County Associations. Still there are very large numbers who do not think it worth while to join these bodies, because they feel it doubtful how far they will derive advantage from membership. Distance from headquarters, inconveniences of getting to the meetings, the uninteresting nature of much of the necessary routine business, all combine to prevent people from joining the larger Associations. But if only four or five neighbouring bee-keepers will but combine to talk with each other about their methods, their difficulties, and their successes, a great stimulus will be given both to the pursuit of bee-keeping and to united efforts to improve the art. Then, if such a small Society be affiliated to the central County Association, new strength will be added to the parent body, while each of the remoter and district members will feel possessed of a share in the larger Society and its doings. One very important matter in each case will be the securing of an energetic man as the honorary secretary for each small branch. Still further stimulus may be given by holding shows—on however diminutive a scale—once a-year. Then, the best exhibits in each of these should, as a rule, be reserved for the county show. Prizes and commendations thus gained will promote a healthy emulation, and the successful competitors will learn to believe in their own powers, and will be led on to renewed effort for improved methods and more careful attention to details.

A last essential—but by no means the least—will be encouragement from the more influential bodies. We, therefore, would very earnestly commend this matter, in the first place, to the notice of the Committee of the B.B.K.A. We venture to suggest the collection of information from those Associations where the plan of branches is in full operation. From the knowledge thus gained, it would be no difficult matter to select such salient points as might be embodied in a leaflet for circulation wherever the possibility of establishing District Associations seemed advisable or possible.

There are many counties which have cultivated District Associations with success, for example, the Herts, the Hants, the Bucks, the Staffordshire, &c.

At the beginning of this article we referred to the report of the Berks County Association. On turning to it, in our last week's issue, it will be seen that there are affiliated branches to the number of eleven. The vigour these have imparted to the central body is manifest from the shows held in various neighbourhoods. We had the pleasure of acting as judge at one of these, and were distinctly impressed with the excellence of the exhibits, the best of which subsequently took the first prize at the County Show at Reading. We know also the excellent spirit prevailing among the members of this District Association, and we have reason to believe a similar good feeling exists in all the affiliated branches. In advocating the adoption of our correspondent's suggestions, we are, therefore, speaking from known facts of the advantages that would certainly come from its adoption. But, while earnestly directing the attention of the Committee of the B.B.K.A. to this matter, we would, with equal fervour, urge all central Committees to promote in every possible way the establishment of branches

in all towns and villages in which the existence of even three or four bee-keepers is known. As the rain-drops make the runnels, and the runnels the streamlets; the streamlets, again, form the rivers; and the rivers replenish the ocean itself; so we may expect wonderful results from the union of individuals into small societies; of these into County Associations, and of the County Associations with the great central body—the B. B. K. A.

SCIENTIFIC SUBJECTS AT CONVERSAZIONES.

There is an idea that scientific subjects should not be brought forward at meetings of bee-keepers, but that only those of a practical character should be discussed. We have always considered this a mistake, and we are glad to find gentlemen willing to bring forward scientific papers for discussion, anticipating that something, however little, may be added to our previous stock of knowledge. There are plenty of persons who do not know what has been discovered in any particular branch of study, or where to refer to for the information, that it must always be of some use to have papers similar to the one read by Mr. Grimshaw at the last Conversazione of the B. B. K. A., and more especially when the subject is handled in so pleasant and able a style. That bee-keepers do take an interest in such subjects was evinced by the discussion which followed.

It is difficult for bee-keepers generally, to get information on scientific subjects, as our knowledge in these is constantly increasing, and the discoveries are published in pamphlets and proceedings of scientific societies not accessible to every one. There is no book to guide the scientific student and to point out what has been done in any particular direction, and by whom, or where the information is to be found. For instance, how many bee-keepers are there who know that Leuckart discovered and propounded that the larvæ of worker bees were weaned, whilst those of queens were not, but were fed with the same food during the whole of their larval existence; or that this discovery was published in 1855 at p. 209 of the *Bienenzeitung*, and that it is referred to in several books? Or how many know what has been done with regard to arriving at some knowledge of the difference of the food of larvæ and that of the queen and drone, or of the discoveries of Schönfeld, Holz, Schiemenz, and others, in connexion with this? Or that Schiemenz, after elaborate researches and a minute description of the five gland systems in the bee, arrived at the conclusion that the food given to the queen 'consists of secretion from system 1, although the others cannot be excluded from its composition?' There is, as we have said, absolutely no work in the English language that gives us this and similar information, or a correct history of the more recent discoveries in connexion with the life-history of bees, which are found scattered in different publications. The French bee-keepers are more fortunate, as they have their Maurice Girard, who, in 1878, published an excellent compilation, a new edition of which was not long since published, with references, of all that was known up to that time. We have no similar book of recent date, and until this want is supplied the student will have to wade through volumes of *Bee Journals* and other books to find what he wants. These Conversaziones assist greatly in spreading such a knowledge, and frequently add something new to that previously known.

The subject chosen by Mr. Grimshaw was not a new one, and, as he observed, had been studied by Swammerdam and others in the last century. Many doubtful points were cleared up later by Dr. H. Landois, who, in 1867, published *Die Ton- und Stimmapparate der Insecten*, which treats the subject in a most exhaustive manner. M. Girard, in the book above alluded to, entitled *Les Abeilles*, in describing the various sounds produced by the bee, makes constant reference to Landois. Mr. Grimshaw refers to Mr. Cheshire; but in justice to those who have written before him, we must point out that he has added nothing to what was already known, and appears to have taken his information from Girard, even to the 'plaited and fringed curtains lying behind the edges of the spiracle' (see pp. 55-60 of the work above mentioned). He does not appear to have paid much attention to Landois's work, or he would not have made the ludicrous mistake he has in the title, which he gives. To call a '*Stimmapparate*' (voice apparatus) a '*Stummaparate*' (dull apparatus), to say the least is droll. In 1868 Marey registered, by the 'graphic method,' the number of vibrations of the wings, and the tone produced in consequence; but Girard points out that these experiments are very uncertain, owing to the difficulty of performing them. The chairman pointed out this difficulty; and it is also shown by the fact that Landois gives the notes formed by the wing-beats of the bee as representing 440 vibrations, whereas the graphic method only gives 190, but he also observes that when the bee is tired the vibrations decrease to 330. Girard says the humming sound is not produced by the wings only; and an example he gives is that of a humble bee (*Bombus terrestris, hortorum*, or *lapidarius*), which, if shut up in a box, and the wings are only producing a slight tremulous motion, a loud humming noise will be heard—a sign of anger or fear. If the spiracles, he says, be stopped with wax, the humming will cease. Chabrier and Burmeister, as well as Landois, have recognised three different tones: 1st, produced by the wing-beats; 2nd, by the vibration of the abdominal rings; and, 3rd, the most acute and intense, from the action of a true vocal apparatus placed in the stigmatic orifices. We were pleased to find a reference made by Mr. Meggy to an article which appeared a couple of years ago in a German magazine on the subject.

That bees possess a voice nas been long admitted; and Baron von Berlepsch, Oettl, Dr. Pollmann, and many others, have described the various sounds. Stahala has given to the sounds different meanings, whether correct or not we cannot say; at any rate it is generally supposed that they are understood by the bees. For instance, he says, if in winter one taps the hive and a loud 'Huumm' is heard, it is a sign that the bees have their queen and sufficient food. The loud 'Dzi-dzi' is heard when both stores and bees are dwindling. The loud 'Dziiiii' will be heard when they are too cold. 'Huuuuuu' is produced by queenless stocks both in summer and winter. A loud 'Wuh-wuh-wuh' is only heard when breeding is going on, but never when the hive is queenless or has an unfertilised queen. Besides these there are some dozen other sounds given, such as those produced by the young queens and bees in anger or otherwise.

When, however, we come to the question of hearing, we encounter a very much greater difficulty. The *depressions* on the antennæ have long been observed, and in 1838 A. Lefebvre published his *Note sur le sentiment olfactif des Insectes*, in which he describes these as organs of smell; and in 1847 Erichson held the same views in his *De fabrica et usu Antennarum in Insectis*. In 1850 Ed. Perris continued Erichson's observations, and published (arriving at the same results) his *Mémoire sur le siège de l'Odorat dans les Articulés;* and more recently, in 1881, G. Hauser published an elaborate treatise, in which he went most exhaustively into the question, entitled *Physiologische und histologische Untersuchungen über das Geruchsorgan der Insecten*, which is by far the most important work we have on the subject, and he also arrives at the same conclusion, and is followed by Schiemenz in 1883, who holds the same opinions. On the other hand, we find Dr. Braxton Hicks, in

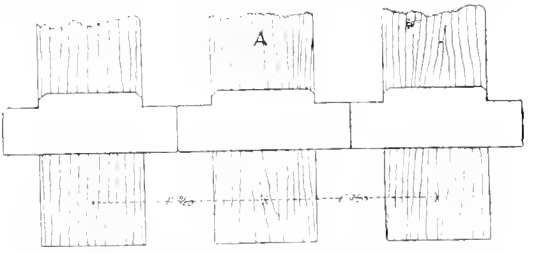
1860, in his paper, *On certain Sensory Organs in Insects hitherto undescribed*, states 'that there is every reason to think that the antennal organs are those of hearing.' This view he also expresses in *The Honey Bee*, published by him in conjunction with J. Samuelson. Again, in 1878, we find V. Graber writing and holding a similar view in *Uber neue, otocystenartige Sinnesorgane der Insecten*: and also Paolo Mayer, *Sopra certi organi di senso nelle Antenne dei Ditteri* in 1878.

That they are organs of hearing is by no means proved, and Mr. Cheshire's is only an opinion which adds nothing to what is already known. It would be interesting if Mr. Grimshaw would try his experiments with a microphone on bees, for Sir John Lubbock, who had an extremely sensitive microphone sent him by Professor Bell and attached it to the under side of one of his ants' nests, could distinguish nothing but the ants walking about. But he says, 'It is, however, far from improbable that ants may produce sounds entirely beyond our range of hearing. Indeed, it is not impossible that insects may possess senses or sensations of which we can no more form an idea than we should have been able to conceive red or green if the human race had been blind. The human ear is sensitive to vibrations reaching at the outside to 38,000 in a second. The sensation of red is produced when 470 millions of millions of vibrations enter the eye in a similar time; but between these two numbers vibrations produce on us only the sensation of heat; we have no special organs of sense adapted to them. There is, however, no reason in the nature of things why this should be the case with animals, and the problematical organs possessed by many of the lower forms may have relation to sensations which we do not perceive.' He further describes structures which he only says 'may very probably be auditory organs' That bees should hear seems reasonable; but it has not yet been satisfactorily proved where the auditory organs are situated, and certainly the weight of evidence so far is in favour of these depressions on the antennæ being considered olfactory.

Another question of interest and importance brought before the meeting by Mr. Grimshaw, was that of using an essential oil to prevent bee-stings. The idea of using something as a preservative is also not a new one, and carbolic acid, oil of tar, a solution of clay, and other things have, from time to time, been recommended; but none of these would be very pleasant on the face. Some years ago we came across a receipt which was said to be a sure preservative against stings of every sort, including those of the bee and mosquito:—½ oz. oil of peppermint, ½ oz. oil of winter-green, ½ oz. spirits of camphor, and ½ oz. of glycerine: the mixture to be well shaken before use, and to be rubbed on sparingly over the exposed parts of the body. We have never tried it, as we do not fear a sting or two, and can manage very well with smoke or carbolic acid; but there may be those who would like to do so, and report their experience. In a list we have before us of Messrs. Burgoyne, Burbidges, Cyriax & Farries, the price quoted for oil of winter-green is 1*s.* 9*d.* an ounce, and as there is no difficulty in cultivating *Gaultheria procumbens*, we do not see why, if there were a demand for it, the plant could not be grown. It is very common in America, grows freely in this country in a peat border, and is easily increased by division. If, however, it can be made artificially, and is equally as good, there would be no necessity at all for cultivating the plant. Bee-keepers will owe Mr. Grimshaw a debt of gratitude for bringing this matter before the meeting, and also in his able article on bee-subjugators, on p. 7 of this year's *Journal*, in which he goes into the question very thoroughly. We hope his endeavours to get *essence of spiræa* manufactured cheaply will succeed, and that he will be rewarded by finding it as efficacious as he anticipates.

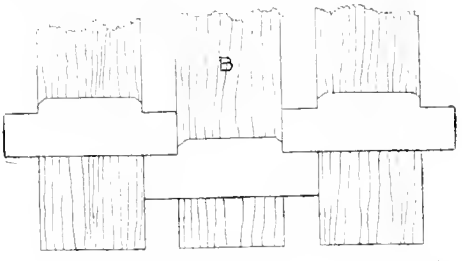
A NEW METAL END.

We have received from Mr. W. Boughton Carr a specimen of his new 'metal end' for frames, and by his kindness, are enabled to give our readers illustrations of



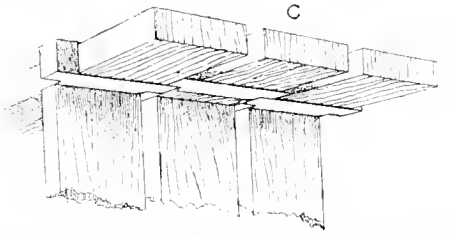
A, Top view of frames, with 'metal ends,' showing frames spaced at usual distance of 1 9/16 from centre to centre.

the manner in which it is used. This metal end is different to any of those in common use, and, in our opinion, removes many of the objections raised against



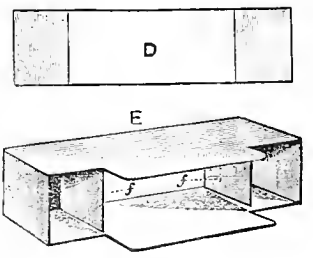
B, The same, with frames spaced to allow a quarter inch between the face of combs.

them. Since Mr. Abbott first introduced broad shoulders in England, in 1873, this manner of keeping the frames at the proper distance apart has been extensively



C, View of under side of frames, showing the 'metal end' of centre frame drawn back for closing up to the quarter inch distance without altering the level of either upper or lower side of frames. D, Sectional view of 'metal end' from the outside. E, Perspective view of ditto from the inside. (C and E *are full size.*)

adopted. Lately, however, metal ends in one form or another have come into use, but their shape is such that a frame furnished with them could not be conveniently used in a hive where there are no such ends used. The ordinary cast-metal end is so thick on the under side of the top bar, that the rabbet on which it slides has to be cut deeper to accommodate it: and if a frame without these ends be used, it necessarily stands below the level of the top of the hive at least an 8th of an inch, and is brought so much closer to the bottom board. Another objection to them is that the distance between the frames is fixed, and they could not be brought closer together. The new metal end which we have before us gets over these



difficulties and can be used in any hive where they have not been previously used, and in other hives a very trifling alteration would make them equally serviceable. Mr. Carr's end (figs D and E) is made of tin, stamped out of one piece and being made by machinery, the greatest accuracy is secured. It fits on the frame end like a collar, and can be slipped on and off very easily, the mouth of the collar having the sides (*f f*, fig. E) unsoldered, there is sufficient spring in them to grip hold of the wood and to retain the end at any part it may be placed. Fig. A shows the ends pushed up against the side bar of the frame, and in this way provides the usual distance of $1\frac{9}{20}$ from centre to centre. If, however, we wish to bring the frames closer together so as to allow only $\frac{1}{4}$ of an inch between the face of the combs, we have merely to slip back the ends on every alternate frame as in Fig. B, and our object will be accomplished.

It will be noticed that if such ends are used when they are pushed back, the wood of the frame comes in contact with the top of the runner, but as the tin of the metal end is so thin, the level of the frames is not perceptibly altered. The possibility of moving the frame laterally we consider an important improvement, and one that will be appreciated by those who, like ourselves, have objected to any projection on the frame-ends.

For many years we have advocated bringing the frames to $1\frac{1}{4}$ inches from centre to centre for the purpose of preventing the production of useless drone brood. This was impossible with the ordinary ends; but with these even those who have not acquired the skill or patience to adjust their frames, are enabled within certain limits, to do so mechanically, without the danger of bringing them too close together and thus injuring the brood. Those who have used ends of the old pattern and wish to adopt these, would have to raise the metal runners an eighth of an inch, and if these are not used, an eighth inch strip of wood must be nailed on to the rabbet.

The following are some of the advantages claimed by the inventor for this new metal end over the ordinary one now in use:—

1. The triangular $\frac{1}{4}$-inch projection for gauging the distance between the frame and side of the hive is done away with as of no real use whatever, the distance being accurately kept by the end of top bar working against the outer wall of the hive.

2. Being made of tin, instead of cast metal, the $\frac{1}{8}$-inch bearing on which the top bar rests in the old style of 'end' is replaced by a collar of tin passing all round the bar, and this collar being no thicker than paper, neither stands up above tops of frames. nor raises the frame up perceptibly on the under side, from the bevelled runner on which it works.

3. They give the long-desired lateral movement which enables the bee-keeper to alter the spacing of frames at certain times, for certain purposes. This alteration can be effected very rapidly without removing a frame, and almost without disturbing the bees.

4. No alteration is made in the distance between bottom bar and floor-board, nor does it interfere with the level of tops of frames if the 'ends' are removed altogether.

5. They are put on and taken off more easily, and when on are far more secure.

6. They cannot drop off through shrinkage of top bar, and may be tightened up in a moment if they should become loose.

7. They combine extreme lightness with strength, and, while as cheap, are less liable to breakage than 'ends' made of type metal.

8. The 'end' makes a *perfect gauge* for enabling manufacturers to produce top bars of uniform width and thickness. (The want of uniformity in this respect has long been felt.)

9. There is no need to remove the 'end' when extracting honey. The reduced size of projecting shoulder allowing it to pass through the ordinary mesh of wire used for cages.

ASSOCIATIONS.

BRITISH BEE-KEEPERS' ASSOCIATION.

Mr. Grimshaw's Paper on the Vocal Organs of Bees.

Discussion.

Mr. Meggy thanked Mr. Grimshaw for the interesting facts he had laid before them, and would be glad to know whether he had seen an article which appeared about a couple of years ago in a German magazine in reference to the sounds made by bees. The writer stated that he had observed forty different sounds made by bees, from which he inferred that the latter must have means of communication by sound. These particulars were made known before Mr. Cheshire brought out his work, and before special attention had been called to the question.

Mr. Grimshaw was sorry that he had not read the article referred to. He had had various theories on the subject, and had been obliged to dismiss them almost as soon as formed. He was in hopes about twelve months ago that some interesting discoveries would be made by a gentleman, whose research was, however, unfortunately stopped by death. He had proposed at swarming time time to introduce the receiver of a microphone in the hive, and at the following season turn the microphone on to the bees at the mouth of the hive, so as to see whether he could produce the same state of contentment. He had heard of cases where one lot of bees in quite a distant part of the manipulating tent have ascended up their wall or post upon hearing the agreeable noise made by the driving in a skep going on in another part of the tent.

The Chairman thought that Mr. Cheshire drew a distinction between buzzing and humming, the buzzing being connected with the wings, and the humming with the spiracles. He (the Chairman) had gathered from Mr. Grimshaw's paper that it was through the spiracles the varying sounds were emitted, whilst the noise made by the wings did not vary at all. It would be interesting to know whether the peculiar sound they were all acquainted with was affected in pitch according to the speed of the wings' vibrations or the way in which the air escaped through the spiracles. One would imagine that it was far more difficult to make a distinction of sounds by wings than by spiracles.

Mr. Webster said the difference of sound in the wing-vibrations was easily explained. In the case of a tuning-fork with extra long prongs the vibrations would be less frequent than with shorter prongs, and the sound produced consequently deeper than that which resulted from quicker vibrations; and there was no doubt that the high or low notes were governed by the pace of the wing vibrations.

Mr. Grimshaw indorsed Mr. Webster's opinion. The notes varied in the musical scale *pro rata* with the number of wing-beats. The drone sounds were low tones compared to the sharp, shrill sounds of the busy workers, whose wings were quickly beating. If one placed his ear immediately outside a frame-hive, tones of all kinds could be heard.

The Chairman remarked that when hanging in a cluster they could not vibrate their wings.

Mr. Grimshaw had no doubt in his own mind that, independently of the wing-sounds, the noises heard in the hive were produced by the bees conversing together —perhaps arranging to kill the queen or drones. (Laughter.) He fully believed that they did converse as intelligently as other members of the animal kingdom. Their brain weight in comparison with the weight of their body ranked very high indeed, much higher than the ant, so much praised by Sir John Lubbock.

In reply to the Chairman, who asked whether Mr. Grimshaw believed that the chief means of communica-

tion possessed by bees was through the voice, and not by touch, the latter gentleman said that he was not prepared to speculate so much as that. It was well known that the olfactory organs of bees were singularly acute, and in a high state of development. They could trace flowers at great distances by smell. He could not hazard a conjecture as to the principal means of their intercommunication, but he thought that the vocal organs could claim their due share. They were not given without an object. It was necessary for bees to intercommunicate, and it was fair to assume that the vocal organs took part in such intercourse.

The Chairman said that some of Huber's experiments went to show that if the queen were separated from the rest of the hive the bees could not be assured of the safety of the queen unless they could touch her. They were quite near enough to talk, but could not tell one another that the queen was safe.

Mr. Grimshaw thought that if the organs of touch were the only means of communication the news passed with extraordinary rapidity.

Mr. Meggy thought Huber's experiments threw some doubt on the question of intercommunication by hearing, and he suggested that Mr. Grimshaw should, during the following summer, undertake to repeat Huber's experiments.

Mr. Baldwin said that he had tried to make the bees raise queens while the queen was present. He had divided a hive and placed two pieces of perforated zinc with a space of more than half an inch between the halves. The bees, however, did not attempt to raise queens; but after he removed the queen they started doing so on both sides of the division. In the first instance they could not touch the queen, but evidently knew that she was there.

Mr. Grimshaw said he founded his views on the law of nature. Every organ had its use, and he contended that as the bees were provided with vocal and auditory organs they must use them. These organs were not rudimentary, but perfect.

Mr. Meggy said he was satisfied that Huber was wrong, and he hoped that Mr. Grimshaw would not hesitate to repeat the experiments of that naturalist because he was a man of great fame.

Captain Campbell explained some experiments he and his son had adopted in reference to the vocal and auditory organs of bees.

Mr. Haviland would like to know, in reference to Mr. Baldwin's experiments, whether the entrances of the divided hive were close together, and whether the bees had access to each part by running in and out; because if the entrances were so close together that the bees of one division could return to the other, they would be able, of course, to communicate with one another. Huber particularly requested that other people would test his observations. There was no doubt that several of the conclusions he came to were not perfectly accurate, and it would be a good thing if they could be tested again. He had often wondered why Mr. Cheshire or others had not done so. If Mr. Cheshire would say what sort of experiments would be the most advantageous to try, a great deal of evidence would soon be accumulated. He (the speaker) would like to know which sound Mr. Cheshire attributed to the air coming out of the spiracles against the wings. The ordinary sounds made by the bees when flying were caused by the beating of the wings against the air. The wings did not come near the spiracles in the act of flight. The only other noise made by the wings he thought was similar to the piping of queens, that was the rubbing of the wings together the same as grasshoppers did. He put three young queens recently hatched in an observatory hive, after having cut off their wings. The bees killed two of those queens, and were very angry with the other queen for twenty-four hours. She ran about to escape them; wherever she stopped she piped, although there was no other queen in the hive.

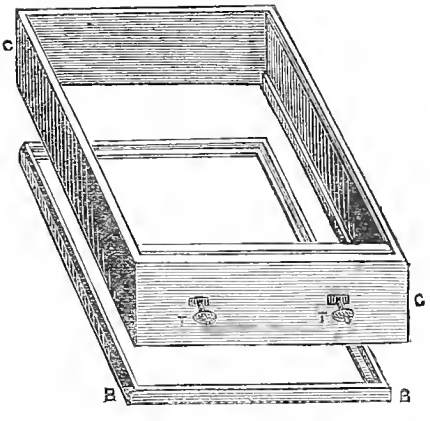
Mr. Grimshaw said he drew a distinction between buzzing or humming, and the vocal sounds. In his opinion the noises heard when the bees were comparatively at rest were the vocal sounds, and were caused by the blowing of air in and out on the plaiting or curtain which was within the spiracle, and also on the edges of the wings. He contended that if they could hear (and they were furnished with auditory hollows) they could speak.

Mr. Baldwin said the hive he referred to was known as a twin hive with entrances at opposite ends. It had one entrance at the south and the other at the north. He divided it and put in the division a piece of perforated zinc, and turned the hive round to east and west. He left the bees with the perforated zinc division about five days, and there was no attempt to raise queens. He then divided the brood, giving eggs to both parts of the hive, and put in the double division with about $\frac{5}{8}$ inch between, and then the bees did not attempt to raise queens. The queen in the one part was continually egg-raising. As they refused to raise queens with the double division, he took away the queen, when they started raising queens.

The Chairman considered Mr. Baldwin's experiment went far towards disproving the accuracy of Huber's observations, but the result of Mr. Baldwin's research seemed to him unanswerable, except on the theory that bees could speak and hear. Still, whatever might be the purpose for which their auditory and vocal powers were given them, he thought it was going too far with the present knowledge at command to suppose that these powers were capable of being employed in the same way by the bees amongst themselves as those of human beings. On behalf of the company present, he heartily thanked Mr. Grimshaw for his interesting paper.

Mr. Sambels then exhibited a new and improved section crate.

Fig. 1.



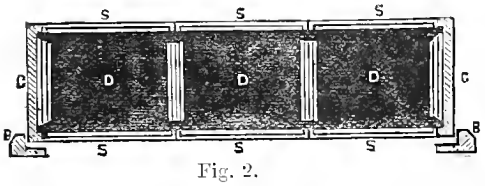


Fig. 2.

Mr. Sambels explained that his super crate was the same as he had shown at the last quarterly Conference of the Hertford branch of the Herts B.K.A. But a description of it was not given at the time in the *B. B. Journal* for want of space, consequently he had brought it to this meeting that those present might have an opportunity of criticising it. He was not a manufacturer of bee-keepers'

appliances, but had designed it for his own use, because he thought it combined all the good points that he had seen in others, as well as a few that he had seen nowhere else. Proceeding to take it to pieces, he said the crate was made of four pieces of board $4\frac{1}{4}$ inches deep, which was exactly the depth of the sections he intended to use. The bee-space was a separate frame of four pieces of wood, as seen at B, Fig. 1, and in section at B, Fig. 2, it was rabbeted out to give greater strength for removing, when stuck down with propolis. On the insides of the two sides of the crate were tacked two fillets $\frac{5}{16}$ of an inch square to form a bee-space round the end of each row of sections. In the front end of the crate were fitted two iron thumb-screws, T, Fig. 1, with brass thumb-pieces and nuts, which, when screwed tightly against a sliding board, pressed the latter tightly against the sections and dividers, and so held all in position by pressure. The bee-space was made separate from the crate to allow of the crate being inverted without removing the bee-space. He did not believe any amount of inverting would increase the amount of honey stored in any one hive if the bees were kept from idleness by other methods, but he believed inverting supers at the proper time would decrease the number of 'pop-holes' in the sections. The dividers (D, Fig. 2) were perforated with slots, to allow the bees free access from one row of sections to another; they were also cut sufficiently short at the ends for a similar purpose. He had two sections fitted with foundation on Mr. Corneil's plan, which was done for the especial benefit of his Hertford friends, but he would like to point out a plan of fixing foundation they had been using in Herts for the past two years: it was recently explained by some contributor, whose name he did not remember, in the *Journal*. It consisted of simply running a saw-kerf the length of the end quarter of each section, and having folded the section as seen in fig. 3, the foundation was then placed in position, and the second flap of the section closed on it, holding it secure. He need scarce point out that was not practical for the narrow strip at the bottom, unless you used four-piece sections, but was a great saving of time and trouble. He would also call attention to the fact that his sections had 'ways' on all four sides.

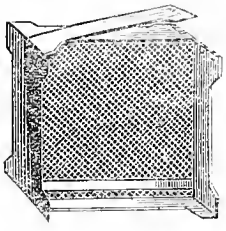


Fig. 3.

(Mr. Sambels requests us to state that having had several inquiries already since the Hertford Conference, to save the time of his friends and himself, he has placed the original super-crate in the hands of Mr. Blow, who will be happy to supply purchasers in the usual way.)

The Chairman expressed the indebtedness of the meeting to Mr. Sambels for his kindness in laying before them his new contrivance.

Mr. Webster then exhibited his frame swivel (see p. 33, January 27), which was invented for the purpose of doing away with the necessity of using both hands to lift a frame out of the hive. By means of the swivel one hand only was employed for lifting the frame, whilst the other was free for manipulations. The swivel was also contrived to permit of the frame being turned round while held up. He also exhibited another invention of a similar character which needed a pin to be put through every frame.

The Chairman considered it a very ingenious idea, and complimented Mr. Webster, at the same time suggesting that the grippers should be made wider and stronger, so that a frame, when filled, might be held securely. He thought it would most probably come into general use.

Mr. Webster then exhibited his fumigator, which was intended to be used with carbolic acid, and was constructed to prevent any of the acid being blown on to the hands of the manipulator. He had not used smoke for two years, and had found that carbolic answered every purpose of smoke.

Captain Campbell said when the bees were really savage a few drops of ammonia must be put in.

Mr. Webster said when the bees were very savage he preferred covering them up and leaving them alone for an hour or two, until a more favourable opportunity.

Mr. Baldwin wished to know whether there was any special objection to smoke. He found it answer very well.

The Chairman thought carbolic of more effect than smoke. Having failed with smoke on one occasion, he saturated his pocket-handkerchief with a very weak solution of carbolic, and after wringing it out he stripped off the quilt and laid it on, when the bees became perfectly quiet in a minute or two, and he took out the frames without any further difficulty.

Mr. Baldwin related his experiences at Lichfield, where he attempted to handle a hive of Cyprian bees after using smoke, and had cause to regret his mistake. He knew nothing about these particular bees when asked to handle them, and never expected to find Cyprians at Lichfield. As soon as he saw their breed, of course he altered his tactics, and proceeded with more care and ultimate success. The whole affair was a source of amusement to the owner, who told his friend of the joke he had played. There was no doubt that the remedy to be used must vary according to the breed of the bees.

Mr. Blow said he had almost abandoned Cyprians altogether, and he thought all wise bee-keepers would do the same. Their advantages were counterbalanced by disadvantages. Smoke must not be used in handling. He kept one stock just for experiments. If great care and gentleness were employed, and a long time allowed for manipulations, the operator could avoid being stung, but otherwise they were uncontrollable. Carbolic acid was no better than smoke for Cyprians. That breed of bees was not suited to the English climate, but if they were kept they must be handled upon Mr. Raynor's system, that was, with the utmost care and gentleness.

Mr. Baldwin said it would be difficult to follow Mr. Webster's advice in the bee tent by putting off manipulations when the bees were angry, which would cause great dissatisfaction to an audience.

Mr. Webster admitted this, and said he had no objection to smoke, but the fumigator was far more convenient, involving much less trouble.

Mr. Grimshaw laid before the meeting a sample of his 'apifuge,' which he believed to be a genuine sting-preventer.

At this juncture Mr. Garratt took the chair on the retirement of the Rev. F. G. Jenyns, who was compelled to leave the meeting.

Mr. Stanford said, in reference to the oil of wintergreen, that Mr. R. Sproule, of the Irish Association, obtained some early in the season, and certainly its effects were magical.

Mr. Webster remembered that Mr. Hart brought a bottle of the oil to the Reading Show, which was described as containing a preventive of bee-stings. Mr. Cheshire took the bottle home with him.

Mr. Sambels asked whether the plant referred to was not similar to meadow-sweet, of which there was plenty to be obtained.

Mr. Grimshaw replied that an immense quantity of that plant would be required to obtain a few drops of essential oil by distillation.

Mr. Haviland said that the danger during manipulations was not confined to the operator. He always had fears for the safety of persons looking on, or moving about near at hand.

The Chairman commented on the interesting discussion which had taken place, and said he was sure all bee-keepers would be pleased to know that some-

thing had been discovered which would assist them greatly in controlling their bees. He thought the meeting would desire to express its best thanks to those gentlemen who had so kindly introduced subjects for consideration. By their aid the Conversazione had been most pleasing and profitable. The company were specially indebted to Mr. Grimshaw for his very able contribution.

Mr. Grimshaw thanked the Chairman for his kind remarks. Without presuming to claim credit for anything original in discovery, invention, or research, it always afforded him immense gratification if he could be the means of starting an interesting discussion. He concluded by expressing his acknowledgments for the patience with which they had listened to him.

The proceedings then terminated.

YORKSHIRE BEE-KEEPER'S ASSOCIATION.

A meeting of this Society was held on the 29th ult. at the Church Institute, Leeds, Thomas Clark, Esq., Burley-in-Wharfedale, in the chair.

After the conclusion of official business, the hon. sec. (G. H. L. Rickards, Esq.) made a proposal, seconded by Mr. Daniel, of Horsforth, and carried unanimously, That a paragraph report of the meeting be drawn up and disseminated amongst the newspapers in suitable parts of the county, embodying Mr. Grimshaw's suggestion that off-shoots, or district societies, are the best means by which County Association work can be efficiently carried on in a county so vast in extent as our own; that a single body of workers, however diligent, cannot do justice to subscribing members so far away from the central body: and that subscribers cannot be expected to go to the expense and trouble of attending meetings, &c., so far away from their own district as the official body necessarily is; and that bee-keepers in various parts of Yorkshire are hereby earnestly desired to assist in systematising the work of the county by uniting together in forming district associations, appointing their own district secretary, having perfect self-government, fixing their own terms of subscription, &c. Also, that by a subscription to the parent society of 5*s.* per annum per branch society, the district secretary and another member of such district society thus become members of committee of the Yorkshire County Association. They would besides have the advantage of the bee-tent for shows, of purchasing requirements in large co-operative quantities at reduced rates, and of participating in competition for prizes, and exhibiting honey for sale, &c., at honey fairs, &c.

It was also decided that the hon. sec. be instructed to subscribe for a copy of the *British Bee Journal*.

A proposal by Mr. Rickards, seconded by Mr. Dodgson, of Skipton, to the effect that Mr. R. A. H. Grimshaw, of Horsforth, be appointed joint hon. sec. with himself, was carried unanimously.

The question of the Saltaire Exhibition was then brought forward by Mr. Rickards, who said he had offered (to the Exhibition Committee) to have exhibitions of bee-manipulations every Wednesday afternoon provided the expenses were paid, but he could not lay before the meeting any definite decision as yet.

Respecting the recent strictures on the Association in the *B. B. J.* the hon. sec. gave a satisfactory explanation as to why they had not been replied to by him.

The annual meeting of the members of the Worcestershire B. K. A. will be held at the Guild Hall, Worcester, on Saturday, February 19, at 3 p.m. In the unavoidable absence of the President, Earl Beauchamp, the chair will be taken by Walter Holland, Esq., Mayor of Worcester, one of the Vice-Presidents of the Association.

The members of the Middlesex B. K. A. are reminded that their Annual Meeting will be held on Thursday, the 10th inst., at 105 Jermyn Street, at 5.30 p.m.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to "The Editor of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Upper St. Martin's Lane, London, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. Huckle, *King's Langley, Herts (see 2nd page of Advertisements)*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

YORKSHIRE COUNTY ASSOCIATION.

[808.] Those of your readers who have followed this subject through your columns during the last few months will be considerably diverted to know that I might have 'saved my wind to blow my porridge with' until the last letter from me appeared. The hon. sec. does not take nor read the *British Bee Journal*, so that all our appeals and complaints did not reach him. Now, however, he is posted up somewhat, through the kindness of a friend in sending him a few copies of the *B. B. J.* This resulted in a courteous invitation being sent me by Mr. Rickards to attend a meeting of the Y. C. A., with results which will be found in another column of the *Journal*.

To prevent a recurrence of our worthy hon. sec. not being kept *au courant* with 'what is going on,' my first proposal (carried unanimously) as a member of the Y.C.A. was that the Association do henceforth subscribe for one copy of the *B. B. J.*, to be filed by the hon. sec.

A satirical friend has suggested that I have been dexterously translated into the 'upper house.' *Eh bien! nous verrons.* I don't care what house it may be called if it only give birth to measures beneficial to the bee-keeping fraternity, viz., active district associations.
—R. A. H. G.

VILLAGE CLUBS.

[809.] With reference to your article and 'A Worker's letter in your issue of the *B. B. J.* for this week I should like, with your permission, to make one or two remarks on the subdivision of County Associations. I feel the more prompted to do this from having read Mr. Grimshaw's different letters in relation to the York Association, and also 'Amateur Expert's' most (in my opinion) valuable suggestion, in the current number of the *B. B. J.*, in reply to that gentleman.

With regard to the subdivisions of County Associations it may, perhaps, be of some slight service if you would kindly make known the terms, &c., upon which the Hants and Isle of Wight Bee-keepers' Association proceeded to carry out this very idea,—'the subdivision of the county,'—now more than twelve months ago. Some two years ago a Village Bee Club was started here in Swanmore, and in the course of a year its numbers had so increased that it was deemed advisable to hold a meeting of its members and to elect regular officers and committee. This was done, and the neighbouring villages hearing of our doings came in to join us, until our Village Club had swollen to the extent of fifteen villages and some eighty members. I was a member of the Hants County Association and also was chosen Secretary of the Village Club, and as such began to feel that if we went on as we were going, we must eventually come into antagonism with the County Association itself. In this difficulty I wrote to our Hon. County Secretary, explaining the whole thing to him; he, I must say, met me in the most handsome and gentlemanly manner, and the result of our correspondence was that a special general meeting of our Village

Club was called, and I moved a resolution that we should be affiliated to the Hants County Association. This, to my pleasant surprise, after some argument was carried unanimously. We thus became part and parcel of the Hants Association, no longer in antagonism to, but working in all good fellowship and harmony with it.

The terms of our amalgamation were as follows:—First of all we were to have our own officers, and to govern ourselves by our own Committee, &c.; also to have our own rules. On our subscriptions, as an affiliation fee, we pay to the County Association the amount of 25 per cent, we retaining the 75 per cent for our own purposes, such as prizes at shows, expenses of lectures, printing, &c. For the said affiliation fee of 25 per cent the County Association agree to consider all our members full members of their body and entitled to all their benefits.

I do not know, Mr. Editor, if I have already trespassed too much on your space, but I should like to be allowed to say that the above scheme has now worked thoroughly well with us here for more than twelve months, and I think that after that amount of trial I may fairly recommend it.

A word also, if I may, as to holding simple lectures on bee-keeping. Last year we held a series in different villages, and the amount of astonishment expressed at the different views, by people who had hardly any idea what bee-keeping is, was very great. New members at once flocked in, and already this year I have several members joining who were convinced by the last year's lectures; so much good did I consider they did, that another series begins on Monday next, February 7th.

I shall be most happy more fully to explain anything should any reader of the *B. B. J.*, or member of a County Association, wishing to help his over-worked (and at the best of times they have a lot to do) County Secretary, care for any further details.

In conclusion, I enclose you a copy of our rules and officers, and also our last year's report.—H. W. West, *Hon. Sec., Hants and Isle of Wight Bee-keepers' Association, Swanmore Branch, Feb. 5.*

PREVENTING SWARMS SETTLING ON HIGH TREES.

[810.] In the *Journal* for January 27th, under the heading 'Gleanings,' there is a paragraph relating how an American gentleman succeeded in preventing swarms settling in high trees by using what is called a 'Yankee queen-stick.' I have attained the same end by placing a round felt hat on end of a long pole, and holding it up among the bees. It does not seem to be of much use raising the hat among the swarming bees *till once they are on the point of settling*, then place the hat as close as possible to the spot where they are preparing to cluster. This seems, in my experience, to be a condition of success. It is simply a modification of Langstroth's bee-bob.

Early last summer I told a neighbouring bee-keeper of the plan, and when his bees swarmed, and were beginning to cluster in a low bush, he stuck an empty hive in centre, and the bees at once took possession.

I would recommend bee-keepers whose hives may stand near trees, or high thorn hedges, to try the method, being careful to attend to what appears to me to be the condition of success—placing the hat as *near as possible to the spot where the swarm is preparing to cluster.* This seems to be the experience of our American friends as well.—John Peters, *Gourock, Scotland, 5th February.*

LEAF-CUTTING BEES.

[811.] In reference to your correspondent wishing to know if others have noticed similar behaviour in a bee, which he mentions under the title of 'Curious mistake of a bee,' I would say, last August I was on a vist to a friend near London, and being in his green-house I noticed a small bee, about half the size of our common hive bee, busy at a reel on a shelf. I found he visited this reel and had nearly filled the hollow with small pieces of the vine leaf, cut beautifully round, and wedged into the hole. After replacing the reel I watched the little fellow over and over again go to the vine, cut a leaf and then fix it into the hole with some glutinous matter. I do not know what became of it. I have also often noticed the same kind of bee visit holes in posts in our garden here, and deposit an extraordinary quantity of leaf-cuttings.

I do not think there was any *mistake* on the part of the bee.—Br. W., *Cowley, St. John.*

CURIOUS MISTAKE OF A BEE. (782.)

[812.] I am reluctant to believe that one of our beloved and dear little friends made the mistake mentioned in the above paragraph. The reel of cotton is so very unlike the cell of a bee. It is much more probable that it was the work of the rose-leaf cutter. This 'little busy bee' builds its nest in the crevice of a wall or in chinks in timber-work, and in using the reel of cotton it was carrying out its usual instinctive propensities. The only mistake made was in taking the reel for a permanent abode. The rose-leaf cutter is smaller than our black bee, but might easily have been mistaken for one by a casual observer. It is a great pest to florists, as it disfigures the roses by cutting hundreds of small circular pieces out of the leaves. It commences its nest by putting at the far end a plug of these pieces; then comes a supply of pollen, next an egg, then more pollen, then another layer of leaves, and so on until it has filled up its apartment. Probably in another hour it would have filled up the hole in the reel. It is a pity that this was not preserved.

I wonder if it would interest the readers of the *Journal* if I now go on to tell of a great puzzle I got into last summer in respect to the proceedings of a rose-leaf cutter? If I do I fear I shall be too diffuse and wearisome, but that I can't help. I must begin by writing about a garden-seat I made. Its manufacture may give a useful hint to some of our amateurs. The basis or stand was the frame of an old sofa. On this I nailed two boards of inch stuff, each a foot wide; next a reclining back of the same stuff, then end-boards for arms, cut in curves as tastefully as lack of artistic skill and bad chisels would permit. Oh, but you can't think how grand it looked when finished and painted! I placed it on a small lawn on the southern side of a high grassy bank, which the inhabitants of this country—certainly 'a peculiar people,' but possibly not very 'zealous of good works'—perversely call a *ditch*. Thus sheltered it made a very pleasant lounge on a summer's day. Yes, don't be impatient, I am coming to my subject now. I was sitting on this seat one day in June or July, when I saw a bee come out of a crack between the two boards forming the seat, close to the end-board or arm. I was wondering for a minute or two where it came from, when it came back, bearing in its mandible a circular bit of leaf. Another minute of wondering, and out it came once more. I suppose it made a dozen or more journeys while I waited and watched. Well enough I might be puzzled, for the crack seemed to lead to *nowhere!* In my extremity I called in a friend who is well known hereabouts for his scientific attainments, and who is indeed of world-wide fame by his publications and work in connexion with ocean telegraphy. He came, and after a minute examination of the premises taken possession of by the bee, he was quite as much bewildered as I had been. There seemed to be no place beyond the crack to which the bee could get access. This crack we could readily explore. The arm was

nailed flush on to the seat, and over the end was placed a piece of wood covering the joint. My friend measured and tapped and stood, watch in hand, timing the bee, which made an entrance and exit once in about three minutes. Nowhere to go! Then what became of the multitudinous loads it carried into the crack? The learned and the unlearned might have been seen on their knees—nay, prone upon the grass—looking earnestly, prying in all directions, but they failed to solve the mystery. The next day I took off the strip of wood nailed between the arm and seat, to see if, by any chance, a hollow place had inadvertently been left. But no, all was solid. There was no visible interstice but the open crack.

In my despair, I then most reluctantly resolved to take off the end, or arm, which, as I have said, was made of inch stuff. With some difficulty I accomplished this, for, with the usual result of amateur carpentry, I had succeeded in nailing it on so very tight that for a long time it refused to come asunder. At length the mystery was revealed. The arm had formed part of a large American box, the boards of which were joined by what, I believe, is called the 'groove-and-tongue' method. I had quite forgotten that the edge of the arm I had nailed to the seat contained the groove. So here was a narrow channel running the whole length of the arm, about twenty inches long, and crossing the crack. Into this channel, right and left of the crack, the bee had been working, and had nearly filled it up with rose-leaves, pollen, and eggs. In due time, but for my interference, the progeny would have come forth to add to the troubles of rose cultivators.

This is my diffuse and prolix story. I could scarcely expect the Editor to find it of sufficient interest for publication but for the fact that at this season there is less than usual to be said about bees.—C. C. P., *Valentia, County Kerry, January 22*, 1887.

INSECTS AT FAULT.

[813.] The incident related by Harold Adcock in your issue of the 20th instant, reminded me of a similar occurrence I witnessed last autumn. When a wasp flew in at the open dining-room window, and after careering rapidly round the room above the heads of the family, who were seated at the table, suddenly darted into one of a series of deep circular holes, each about the size of a honey-comb cell, which embellished the edge of the oak mantel-shelf. After remaining a few seconds he emerged, and flying straight to the open window disappeared.

On searching the hole we found he had deposited a small *live* green caterpillar, many insect remains were entombed also in the same repository, so doubtless he had been in the habit of utilising the ornamental aperture as a store-room.

Subsequent cold winds necessitated the closing of the windows, no further opportunity was therefore afforded of watching the interesting movements of this erratic specimen of '*Vespa vulgaris*.'—Emily Culverhouse, *The Hundred Acres, Sutton, Surrey, Jan.* 30.

THE HEDDON HIVE.

[814.] We need scarcely wait for the appearance of the February number of the *Bee-keeper's Magazine*, as advised by Mr. Jas. A. Abbott in the *Journal* last week (801), to see Mr. Heddon's own disclaimer of the advantages (?) of the half bee-space, or the good points that he now claims for his new hive, as he has given them to the world on page 789 of the *Canadian Bee Journal* for Dec. 29th, 1886, and also in his circular for 1887 to his customers and friends. His own words are:—

'The combined experience of my foreman, students, and myself, during the past season, brings us unanimously to a conclusion somewhat at variance with those with which we entered the season of 1886.

'After the first inversion of the brood-combs which secures the complete filling of the frames, we never care to invert them again. When the brood-chamber is large and deep, by virtue of its being composed of two brood-sections, the interchanging of them accomplishes all, and better, than can be accomplished by inverting. When the brood-chamber is contracted to one case, it is then so small and shallow that all the favourable conditions that could result from inverting are always present. In regard to reversing surplus sections, we find the following serious objections to inverting them by whole cases.

'If the combs are not sufficiently developed to be properly attached to the sides of the sections, they will fall over, making a bad mess. On the other hand, if they are pretty nearly all capped over and then reversed, they will either be finished without being attached at the top at all, or else, what is oftener the case, be ridged and made to look bungled as they are attached to the bottom-piece, now at the top of the case. They are also not so white and beautiful as those not so reversed. There is, however, a short period in the development of these little surplus combs in which inverting results in all the advantages ever claimed for it; but as it is a fact that the combs of a whole case are rarely all at this stage of development at one time, we are unanimously in favour of inverting them by wide frames . . . .

'In the light of the foregoing we unanimously advise making the new hive with full, rather than half bee-spaces, as was adopted when considering both systems three years ago. This will also save much complication when using the new hive in the same apiary with other style of hives with full bee-spaces. The grand functions of the hive consist first, in the arrangement by which the combs can be divested of queens or workers, and their conditions instantly determined without the labour of removing or exposing them to robber bees. Second, a brood chamber divided in horizontal sections. Third, the break-joint honey-board as used with the new hive. Fourth, the set screws for tightly compressing the frames to avoid propolis, and to support them when we may desire to invert them.'

My quotation is rather long-winded, but from it I conclude: (*a*) 'Spreading brood,' as we practise it, is equally as good as Mr. Heddon's 'inverting,' or, as he now recommends, 'interchanging.' (*b*) If the season is bad no amount of inverting section cases will get the sections finished off, quickly, white and clean, and with few 'pop-holes,' while in a good honey flow most of us have not much to complain of on that score, if our stocks are strong. The removal of the centre rows of sections and placing the half-finished outside ones in their places, we scarcely need Mr. Heddon to tell us, is advisable sometimes. (*c*) How Mr. Heddon can clear his frames from queen and workers more quickly and easily than we can from our ordinary standard frame hives I shall be happy to learn, at present I don't see it. (*d*) The 'break-joint honey-board' is with us an 'improvement' that we have relegated to the limbo of antiquity. (*e*) The set screws for sections may be useful, but for brood frames we shall at present decline their use with thanks. (*f*) The distance the Americans are ahead of us, and the amount they can learn us, if this is their 'latest and best,' is very infinitesimal indeed.—Amateur Expert.

NOTICES TO CORRESPONDENTS & INQUIRERS.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

Castle Douglas.—1. *Ends of Sheet Metal.*—Your end is ingeniously formed, bur we do not consider it as good as the cast metal ends at present in use, and the important space of ¼ inch between frame and hive side is not kept. There would be also a vast amount of propolization. 2. *Fixing Foundation.*—Your plan of only partly dividing the top bar by a saw-cut on the under side, so that it might be sprung open to receive the sheet, would not be so convenient as having the cut through it. The small grip upon the sheet would not in all cases be sufficient to

prevent falling, and the nails would not bring the top bar down flat, but would allow it to remain concave on the upper surface.

W. Wilson.—1. *Skep Overthrown.*—By the syrup running out, the combs are certainly broken down. When righting it you should have removed the floor-board and replaced the combs, keeping them as nearly as possible in place by putting two or three sticks through them. They will now be fixed together in a mass, giving you more trouble to separate; still, you had better do so the first warm day before brood is in progress. If you have some bar-frame hives and some stored combs, it would be as well to make up a set of four or five, drive the bees and hive them on them, giving them the broken combs to clear out when weather permits. 2. *Bees in Skep Dead.*—Your neighbour must have made a mistake as to the age of the hive. A swarm of 1885 could not have existed until now without brood combs. From the combs being so small, and no brood having been raised in them, it must have been a late cast or virgin swarm of 1886 which lost the queen, and consequently died out. 3. *Inversion.*—Had you placed a sheet of excluder between the skeps when inverting, the combs would have been built downwards in the top one instead of continued upwards, as was the case. Your plan of inverting frames by a piece of hoop-iron pivoted to the end bar is similar to Neighbour's plan. Your experience of the combs being less liable to damage in extracting after inversion, owing to their being built and fixed to all sides of the frames, is in accordance with others'.

O. W.—If the honey in the outside frames is not granulated the bees will reach it through the winter passages, and use it when the temperature is sufficiently warm. Meanwhile warm candy—made, as you propose, of fine sugar and syrup—placed over the cluster will be advisable, until you can examine the hive.

M. Humfrey.—*Observatory hive, Dysentery, Quilts, &c.*—The hive may be cleaned a second time, but the bees are not in sufficient numbers to draw out foundation. Continue to feed with candy. Toward April you may give syrup. If the bees survive they will require to be reinforced with young bees at spring. You may change the damp floor-boards; you will then discover which hives are attacked by mice, and by reducing the size of entrance may keep them out in future. You are quite right in changing damp quilts for dry ones.

F. W. C.—*Removing.—Spring Flowers.—Separating Doubled Hives.*—If the removal had been made a month earlier there would have been less chance of bees returning. During the winter months we constantly move colonies short distances, and never lose bees to any extent worth naming. If fine days occur soon after removal, a few bees will fly around the old spot, but eventually return to their hive. Possibly a sudden change of temperature chilled the bees. You will find the colonies none the worse in the end. Your spring flowers are much earlier than ours. We have no bloom at present, neither furze, crocus, nor snowdrop. Our experience, too, differs respecting condemned bees, of which we have about twenty lots, and have often had more during many past years, but have no robbing; indeed, when possessed of plentiful stores, they are far less given to robbing than the Eastern races of bees. To separate your double hives, at any time during mild weather inject smoke into the lower hive, so driving the bees into the upper one, which remove at once from the lower, placing it on a fresh floor-board, and setting it on the old stand. Then examine the lower hive, and transfer any frames containing brood to the centre of the other, making room for them by abstracting sealed or empty combs. Any adhering bees may be shaken on a board in front of the populated hive, or on the top of the frames. A careful look-out must be kept for the queen when manipulating the lower hive. Another plan is to separate the two hives, placing each on separate floor-boards, and manipulating each hive singly, transferring queen, bees, brood, and sufficient store of sealed honey, to one, and reserving the remaining combs for future use. The operation is very simple and should be quickly performed. Separate the hives with a chisel, blow in a little smoke, and operate towards evening to avoid robbing. We advise you to break up the combs of heather honey; it would be bad policy to give them to a swarm. Messrs. Turner, Radcliffe-on-Trent, Notts, advertise in our columns a very useful 'Squeezer' for heather honey, which is of more value than other kinds of honey, and, from its greater density, of less value to the bees. It is very likely that you may find the bees domiciled in the upper hives, in which case you have simply to remove the lower. In that case the first plan suggested is the best.

Amateur.—*Queenless Stock.*—In all probability your bees became queenless and deserted, to join some other colony, on one of the fine mild days on which the bees were flying freely, since the departure of the late severe weather; or they might have dwindled and been driven out by robbers. This might have occurred immediately after packing for winter from injury to or loss of queen.

R. Chapman.—1. *Tar.*—Yes. Stockholm and gas tar should be heated nearly to boiling point, and well mixed, being allowed to cool before the spirit of turpentine is added. The more turpentine used the quicker the mixture dries. A pint of turpentine to ten pints of tar will do, or two of turps to ten of tar, if you wish it to dry quickly. We do not paint over the tar, but if any other colour is desired it may be done. 2. *Deep Frame.*—There has been no authorised decision in regard to a deeper frame than the Standard. From 10 in. to 12 in. deep by 12 or 14 in. long is a good size. Your experience with the deeper frame is the same as our own. Abbott's frame increased in depth to 14 in. would be rather too deep. We should prefer 12 in. depth. 3. *Bee Farm.*—Judging from your description of the four-acre piece of land, with its surroundings of woods, limes, hawthorn, &c., we should think it a good speculation at a moderate rent. 4. *Pheasants.*—Pheasants do not devour bees, neither do fowls, but we have seen them occasionally pick up a drone. 5. *Becoming Experts.*—We can hardly advise you as to your sons becoming experts. If handy, industrious, honest, and anxious to learn, young men of from seventeen to nineteen years of age would find no difficulty, we should think, in making arrangements with some of our larger apiarists on the terms you suggest. Mr. Simmins, we believe, trains young men; probably others also who are possessed of large and well-managed apiaries.

W. C. T.—There should be no difficulty in your obtaining information respecting the examination for a third-class certificate. Mr. Kent, hon. sec. of the Cornwall B. K. A., Truro, would be pleased to give you the desired information.

Far North.—The samples of enamel cloth forwarded are suitable for placing on tops of frames. Nos. 1 and 2 are the best for the purpose.

R. E. Lloyd.—Both samples of Porto Rico are good; but No. 2 brown is the more suitable for feeding bees on Mr. Simmins' plan.

C. C. M.—There is no occasion for suspecting foul brood in the hive from which the frame forwarded came. The comb is healthy and the honey in good condition. The comb was slightly mouldy, and the hive must have been damp. We consider the measures taken were the best that could have been adopted for the preservation of the remaining bees.

H. L.—The foundation remaining from last year may be advantageously utilised this season. You can remove the brittleness, and render it fit for use by hot water. Let it be hot to the hand; about one pint of boiling to two of cold will be right. Just hold the sheet in the water for half a minute.

J. H.—Your letter respecting the Yorkshire Bee-keepers' Association has been received with thanks; but we consider, now that Mr. Grimshaw has consented to be co-secretary with Mr. Rickards, and new hopes are entertained for the future success of the Association, that it would be more discreet not to publish it.

Received from Mr. John Smith, the Royal Nursery, Clewer, Windsor, a packet of seeds, sought after by bees, containing twelve assorted varieties, with full directions for cultivation.

Received from Mr. Henry Dobbie, Cringlefold, Norwich, Descriptive Catalogue of Vegetable and other Seeds, Herbs, &c.

CORRECTION.—*Useful Hints*, p. 45, 7 lines from end, *for* and the close-ended frames being dispensed with, *read* but the close-ended frames have not been dispensed with.

We have reports of several County Associations in type, to which we hope to give insertion in our next issue.

Show Announcements.

Giving Name and Address of Secretary, Date and Place of Show, Date of Closing Entries. Terms: Three Insertions and under, Two Shillings and Sixpence; additional insertions, Sixpence each. No charge made to those Associations whose Shows are announced in our general Advertising Columns.

July 11–15.—Royal Agricultural Show at Newcastle-on-Tyne. Entries close May 12. J. Huckle, Kings Langley.

August 3–5.—Yorkshire Agricultural Society at York, Secretary, H. L. Rickards, Poole, near Leeds.

Business Directory.

The Name and Address and Business of any Manufacturer will be inserted in this List, under one heading, for One Pound per annum. Additional headings, Five Shillings extra. Advertisers in 'THE BEE JOURNAL,' whose orders amount to Five Pounds per annum, will be inserted Free.

HIVES AND OTHER APPLIANCES.

ABBOTT BROS., Southall, London.
APPLETON, H. M., 256A Hotwell Road, Bristol.
BALDWIN, S. J., Bromley, Kent.
BLOW, T. B., Welwyn, Herts.
BURTT, E. J., Stroud Road, Gloucester.
EDEY & SON, St. Neots.
HOLE, J. R. W., Tarrington, Ledbury.
HOWARD, J. H., Holme, Peterborough.
MEADHAM, M., Huntington, Hereford.
MEADOWS, W. P., Syston, Leicester.
NEIGHBOUR & SONS, 149 Regent St. & 127 High Holborn.
STOTHARD, G., Welwyn, Herts.
THE BRITISH BEE-KEEPERS' STORES, 23 Cornhill, E.C.
WALTON, E. C., Muskham, Newark.
WREN & SON, 139 High Street, Lowestoft.

HONEY MERCHANTS.

ABBOTT BROS., Southall, London.
BALDWIN, S. J., Bromley, Kent.
BRITISH HONEY Co., Limited, 17 King William St., Strand.
COUNTRY HONEY SUPPLY, 23 Cornhill, E.C.
HOWARD, J. H., Holme, Peterborough.
NEIGHBOUR & SONS, 149 Regent St. & 127 High Holborn
WALTON, E. C., Muskham, Newark.

FOREIGN BEES AND QUEENS.

ABBOTT BROS., Southall, London.
BALDWIN, S. J., Bromley, Kent.
BLOW, T. B., Welwyn, Herts.
BENTON, F., Munich, Germany.
HOWARD, J. H., Holme, Peterborough.
NEIGHBOUR & SONS, 149 Regent St. & 127 High Holborn.
SIMMINS, S., Rottingdean, near Brighton.
WALTON, E. C., Muskham, Newark.

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BLOW, T. B., Welwyn, Herts.
LYON, F., 94 Harleyford Road, London, S.E.
NEIGHBOUR & SONS, 149 Regent St. & 127 High Holborn.
WALTON, E. C., Muskham, Newark.

COMB FOUNDATION.

ABBOTT BROS., Southall, London.
BALDWIN, S. J., Bromley, Kent.
BLOW, T. B., Welwyn, Herts.
HOWARD, J. H., Holme, Peterborough.
NEIGHBOUR & SONS, 149 Regent St. & 127 High Holborn.
STOTHARD, G., Welwyn, Herts

MR. J. A. ABBOTT

BEGS to announce that he has returned from his American Tour, having made most favourable arrangements for the supply of

SECTIONS, HIVES, &c., &c.

It is now arranged that he will continue to trade in conjunction with his Brothers, and he therefore requests that all business letters be addressed

ABBOTT BROTHERS, Southall.

THE WINDSOR BEE-KEEPER'S
Choice Selected Collection of
SEEDS OF FLOWERS
SOUGHT AFTER BY BEES. Free by post, 2/6.
SOLD BY
JOHN SMITH, The Royal Nursery, Clewer, Windsor, Berks.

SKEPS, FOUNDATION, &c.
1 lb. 2/- or 1/10.
Dealers and others apply for List (110 *Illustrations*),
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SUGAR.—Having had many enquiries from those who cannot obtain the right kind, we now offer Genuine PORTO RICO, on rail at Brighton, 21*s.* per cwt., 11*s.* 56-lbs., 5*s.* 9*d.* 28-lbs. DUTCH CRUSHED, best for Syrup, 22*s.* 6*d.* per cwt., 11*s.* 6*d.* 56-lbs., 6*s.* 28-lbs. Quantities of *not less* than 2 cwt. of Dutch Crushed, direct from London, at 19*s.* 6*d.* per cwt.; *not less* than 10 cwt. Porto Rico, at 18*s.* For Cash only with Order. No Samples sent, as we recommend only what we would use ourselves. Subject to fluctuations in Market.
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GENUINE PORTO RICO SUGAR.
¼-cwt. bag, 5/3; ½-cwt. bag, 10*s.* 3*d.*; 2-cwt. bags @ 19/0 cwt.
W. B. WEBSTER, WOKINGHAM, BERKS. 21

CHAPMAN HONEY PLANT.

I WILL send to any address 26 varieties of BEE-FLOWER SEEDS, including the Noted CHAPMAN HONEY PLANT, for 2*s.* post paid. GARDEN SEEDS.—I will send 21 packets of Garden Seeds to any address for 2*s.* 6*d.* post paid. BAR-FRAME HIVES with Straw bodies, the hive least affected by heat or cold. My Hives and Appliances are all forwarded carriage paid, and returnable if not approved on arrival. Please send your address on post-card, and I will send Descriptive and Priced Catalogue post free. Address JOHN MOORE, Seed Merchant, Market Place, and Prospect Farm, Warwick.

RARE BARGAINS.—Owing to change of Pattern, I have bought Mr. BLOW'S OLD PATTERN HIVES, 'Standard' size. 10/6 for 7/6, 15/0 for 12/0, 21/0 for 18/0. Two Cork Hives, 35/0 for 25/0; Cowan, 27/6 for 24/0, all new. DARK FOUNDATION, 1/5 per lb. MELILOTUS LEUCANTHA, 2/6 per 100. Address E. JACKSON, Welwyn, Herts.

SCREW CAP JARS.—Fifty 2-gross Cases of new Straight Shape 1-lb. JARS to be Sold at a great reduction, together or separately. Address FREDK. PEARSON, Stockton Heath, Warrington.

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STANDARD BROAD-SHOULDER FRAMES, 1*s.* 8*d.* per doz. STANDARD FRAMES, with Metal Ends complete, 1*s.* 6*d.* per doz. All made of best Pine, with saw-cut for Foundation. Sample, 3 Stamps, free. Terms for quantities. Address
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TO BE GIVEN AWAY!
ONE AND A HALF DOZEN
Clark's Patent Climax Hives.

IN order that these Hives may be more generally known, the Licensee has determined to give away among Purchasers of undermentioned Goods during this February, One Dozen No. 2, and Half-dozen No. 1 HIVES (full particulars given in last year's Advertisement), at the rate of one among every thirty Purchasers, to be distributed by a lottery, to conduct which he will endeavour to obtain the assistance of persons of known integrity. Purchasers of any two articles above 1*s.* to have one chance, and each 2*s.* 6*d.* one chance; every further 2*s.* 6*d.* an additional chance.

N.B.—In order to have a chance of securing one of these Hives gratis, Orders *must be sent in during February*, as the lottery will take place early in March and Hives at once forwarded to respective Winners.

PRICES.

Finest quality White Basswood A SECTIONS, 4¼ × 4¼ × 2, per 100, 3*s.*; 500, 11*s.*; 1000, 21*s.* 5¼ × 6¼, per 100, 3*s.* 6*d.*; 500, 13*s.*; 1000, 25*s.* PURE FOUNDATION, BROOD, per lb. 2*s.*; 5 lbs., 1*s.* 10*d.*; 5 lbs. to 25 lbs., 1*s.* 9½*d.*; SUPER ditto, per lb. 2*s.* 9*d.* SMOKER (Bingham), 2*s.* 9*d.* REGULATING FEEDERS, 1*s.* 6*d.* 'LITTLE WONDER' EXTRACTOR, 10*s.* 'VEILS, 1*s.* 3*d.* PINE'S METAL ENDS, per gross, 7*s.*

TOOLS FOR HIVE MAKING.

Set of 36 best Cast Steel Black Bits and Iron Brace, 15*s.* 6*d.* Beech Braee, Lignum head, 26 Bits ditto, 18*s.* 6*d.* Set of 12 Cast Steel Chisels, from 1 in. down, 5*s.* 6*d.* Handles, 2*d.* eaeh. Tenon Saw File, 3½*d.*; Hand Saw, 4*d.* Marking Guages, 9*d.* Mortice ditto, from 2*s.* 6*d.* to 3*s.* 6*d.* Best Twist Gimlets, assorted, three, 10½*d.* Small Hammer, 1*s.*; larger, 1*s.* 6*d.* Name Stamps, Steel, 4*d.* per letter. Oil Stones from 1*s.* to 3*s.* Best Smoothing Planes, 2 in. 3*s.* 6*d.*, 2⅛ 4*s.*, 2¼ 4*s.* 3*d.* Best Jack Plane, 4*s.* 9*d.* Best Try Plane, 6*s.* 6*d.* Best Cast Steel Hand Saw, 22 ins., 4*s.*; 24 ins., 4*s.* 6*d.* Tenon Saw, 14 ins., Iron Back, 3*s.* 9*d.*; Brass ditto, 5*s.* 6*d.* Dove-tail Saw, 3*s.* 2 ft. Rules, 2 fold, 1*s.* and 1*s.* 6*d.*; 4 fold, 1*s.* 3*d.* to 2*s.* 3*d.* Spokeshave, 1*s.* 1*d.* Squares, 6 in., 1*s.* 8*d.*; 9 in., 2*s.* 3*d.*; 12 in., 3*s.*

Kindly oblige by adding sufficient postage for small packages of goods.

All Orders to be addressed to **W. J. GREEN,**
Hive Works, Friar Street, Sudbury, Suffolk.
A 2325

SHORTLY WILL BE PUBLISHED, No. II. OF GUIDE-BOOK PAMPHLETS.

HOW TO MAKE AN EXTRACTOR,
AND
HOW TO MAKE A BELLOWS SMOKER.

BY T. W. COWAN, F.G.S., F.R.M.S.

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THE
BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, St. Martin's Lane, W.C.'

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Editorial, Notices, &c.

OUTLINES OF BEE-KEEPING FOR BEGINNERS.

(*Continued from page* 43.)

II.—HOW TO COMMENCE BEE-KEEPING.

1. The beginner should never make a start on a large scale. He had better commence with one or two hives, and increase as he gets experience, not forgetting that there is a great deal to learn—although not more than any one of ordinary intelligence can manage—before he can expect to be a successful bee-keeper.

2. The best time to commence is in the spring, and it can be either by the purchase of a swarm, or a stock of bees, in a skep or a wooden hive. If the bee-keeper decide on the purchase of a hive, he should secure this from the nearest bee-keeper of his neighbourhood in the beginning of April. If he is not able to afford the cost of such a hive, he will have to begin with a swarm, which he should secure in May or the beginning of June.

3. If he has had no previous experience in keeping bees, it would be better for him to consult, and get the help of, the county expert; or if he is not able to do this, to enlist the services of a practical bee-keeper in his district.

4. Should he not be able to get any such help, he must try and get a swarm from a hive which was known to have swarmed the previous season, because the queen of such a swarm would be a young one and in her prime. The larger the swarm, the better. The bee-keeper can judge the strength of the swarm by its weight or measure. Three pounds of bees, or a little more than a gallon, would be a medium swarm; and five pounds, or about seven quarts, would be a good swarm.

5. Much greater care should be exercised in purchasing an old hive, and it should be well examined before it is taken. If in a skep, blow in a little smoke at the entrance, and after a few minutes turn it up. The hive should be full of bees, and these can be driven down with a few more puffs of smoke. (Instead of smoke *carbolic acid* can be used; but this will be explained in another chapter.) Examine the combs, and see that they are free from mould, and if, on pushing them apart, brood is found, it shows that the queen is present. The combs should be straight and regular, coming down to the bottom of the hive. If the combs in such a hive are not too black or old, it can be purchased, especially if it had swarmed the previous season. This hive can be kept for supplying swarms, or the bees can be driven and the combs transferred to a frame-hive in the manner to be explained later.

6. If the purchase of a frame-hive has been decided upon, the same observations should be made while the bee-keeper is taking out the combs and examining the hive. If the operator is a skilful one, and his movements are carefully watched by the beginner, this will be as good as a lesson for him.

7. Make up your mind to be guided by the instructions given for at least two years, with what help can be obtained from the expert or a friend, and only after that try experiments.

BLOW'S BRITISH HEDDON INVERTIBLE HIVE.

We noted in our account of the meeting of Herts bee-keepers at Hertford that Mr. T. B. Blow, of Welwyn, exhibited a hive on the reversing principle, and at the time we had not space to describe it, but we promised to do so in some future number.

Mr. Blow has endeavoured to combine in this hive the use of the shallow bars suitable for extracting purposes or to hold sections, and the ordinary Standard bar-frames.

Fig. 1 shows the floor-board, which is so constructed as to have a full entrance the whole width of the hive

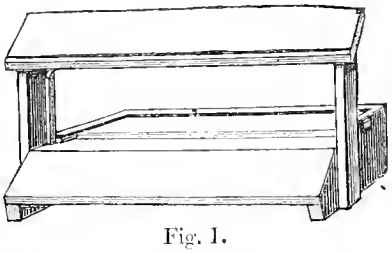

Fig. 1.

so that very efficient ventilation is secured in the hottest weather, and the risk of swarming through overheating, &c., is avoided. A half bee-space is fitted round three sides of the floor-board, and to the front is fixed the porch. This is a feature not at all noticed in the foreign reversible hives, but is of great importance, not only as

a shelter from the sun's rays, but as a roof to prevent water getting on the alighting board and rendering the bees chilled when they are returning home during a sudden storm in the spring.

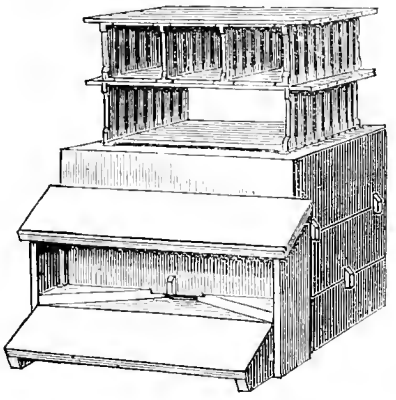

Fig. 2.

From the illustrations, 2 and 3, it will be seen that each body will hold ten bar frames and one dummy. To the dummy springs are attached, and the frames are held firmly in place by this means and each box can be

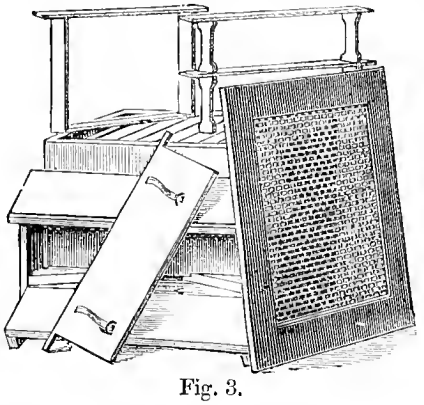

Fig. 3.

readily inverted without any danger of the bars falling out. It is claimed that spring dummies have an advantage over screws, as the pressure from the springs is always constant, whereas if any shrinkage takes place, the

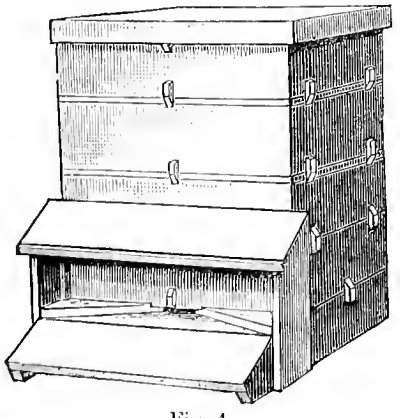

Fig. 4.

pressure from screws will cease, and, again, if screws are wood they swell when exposed to wet, or if iron they rust.

Each frame will contain three 1-lb. sections, thus a hive with two super boxes on will hold sixty pounds. Dividers can be very easily applied, and if used have four slots, enabling the bees to get very free access to all parts of the combs.

Two of the bodies form a hive that will take standard bar frames, see fig. 3, so that the introduction of these shallow invertible boxes does mean that the appliances at present in use are to be thrown aside as useless. To keep the boxes in exact position, one upon another, it was originally intended to use buttons, as in the Stewarton hive, and as shown in the engravings, but loose tongues of wood have been found to answer better, more especially when two boxes are used with standard bars for wintering purposes. A queen-excluding dummy with half bee-space in each side is used between the body boxes and super boxes. Fig. 4 shows the hive complete with two body boxes and two supers.

At the meeting referred to, this hive was very favourably received as a step in the right direction.

SIMMINS' SELF-ACTING SYRUP-CAN.

On page 115, Vol. XIII., was given a full description of several styles of feeders invented by Mr. Simmins—viz., the Commercial, the Frame, and the Amateur Feeders. The principal feature in these feeders is that they dispense with cooking, and reduce sugar to syrup without stirring by the addition of water in certain proportions. The loaf-sugar and cold water should be put in the feeder in the proportion of 1 lb. of sugar to half-pint of water. Warm water should be used in cold weather, or, if preferred, at all times; though if cold be used the sugar will soon be reduced to syrup. The Self-acting Syrup-Can, recently brought out by Mr. Simmins, is fitted with a lining of perforated zinc, and the syrup is made on the principle of the above feeders; and as the trouble of cooking or mixing sugar and water is thus done away with, it will be found a great saving of time, and will prove a great accommodation in all apiaries where the practice of feeding with syrup is still adhered to.

USEFUL HINTS.

Weather.—A fortnight's fine weather, with several days of brilliant sunshine, and high temperature, have effectually aroused the bees and enticed them forth in search of pollen, of which at present they find but little. The nut-bushes, laden with catkins and shedding pollen abundantly, have been our chief source of supply, the crocus and snowdrops not yet having made their appearance.

Spring Flowers.—Soon, however, we may hope to welcome these sweet harbingers of spring, together with mezereon, the bloom of the elms, poplars, furze, aconites, *et hoc genus omne*, gladdening our hearts, as well as the bees, after the long and trying winter, now, as we hope, drawing to its close, although, while writing, severe frost has again appeared, and the clouds are threatening snow.

Manipulating.—The late fine weather may have tempted the inexperienced to manipulate too freely, the ill effects of which will soon become apparent from the dwindling of the population where the brood-nest has been broken or much disturbed. At this early period we cannot too strongly urge, upon all, the absolute necessity of abstaining from interference with colonies further than merely raising quilts, supplying food where it is required, and a change of floor-board, all of which operations should be performed with the minimum of disturbance.

Feeding.—Consumption of stores by strong colonies,

during the late fine weather, will have become more rapid; and it behoves the careful apiarist to have an eye to this matter, and not to allow his forwardest and best stocks to perish from want of food. Often have we beheld this piteous sight—hives literally full of bees utterly prostrated by famine—the dead and dying bees blocking the entrances, covering the floor-boards, or languidly clustering between the combs emptied of their honey, but partly filled with starving brood. Prevent the occurrence of so painful a catastrophe by a timely supply of food. Soft warm candy, or sealed honey, should still be given.

Moderate Supply.—Soon, in finer, warmer weather, syrup will be admissible, precautions against robbing being taken, and care being exercised against too rapid feeding, for if colonies are overfed, mischief will result from filling up the brood-combs and thus giving a check to the production of brood. Food supplied in excess is almost as bad as starvation. This warning becomes more necessary where colonies are only moderate in strength and confined by division-boards to a few combs. In such case the brood-nest is quickly filled, breeding altogether ceases, and day by day the colony becomes smaller until the end comes.

Small Colonies.—Hence building up small colonies is a work requiring much care and judgment, lacking which it is far better to unite.

Equalisation.—Here one of the great advantages of moveable combs is realised. Given a small colony with little food or brood, and a large one with abundance—or the converse—what more easy than to transpose brood or honey, and thus to equalise the two, always providing that frames are interchangeable? But whatever manipulation may be deemed necessary at this early season, 'when 'twere done 'twere well 'twere done quickly,' that no chance of robbing and consequent encasement of queens may be afforded.

Motto for 'Journal.'—Thinking of Shakespeare reminds one that 'our *Journal*' is sadly in want of a motto. Why should we not have one, and what better one could we adopt—in these days of sedition, change, home rule, misrule, and what not—than 'Stick to your *Journal*.'—*Cymbeline*, Act iv. Scene 2. (Shakespeare.) Yes, we say emphatically, if you have the interests of bee-keepers—whether cottagers, amateurs, or professionals—at heart, 'Stick to your *Journal*.' Not that we apprehend sedition in our camp, but we would have all our fraternity loyal and true, and eager to extend its circulation to all classes of our fellow-countrymen by all means in their power, realising, as we do in our own person, how great would have been the advantage derived in our younger days from the perusal of such an organ. *Post tenebras lux!* and the deprivation of 'the *Journal*' now would assuredly cause the deprived justly to exclaim, '*Quantæ sunt tenebræ! væ mihi! væ mihi, væ!*' ('How great the darkness to me! Woe to me, woe to me be!')

Queenlessness may generally be discovered when the bees begin their spring flights. Listlessness or inactivity, carrying in little or no pollen, sluggishness or want of alacrity in entering the hive on returning from the fields, restlessness exhibited by going in and out of the hive in an inquiring manner, indisposition to defend the hive, are all more or less signs of the loss of queen. Colonies acting thus should be examined at the earliest opportunity, and will generally be found to possess neither eggs, brood, nor queen, in which case an early union should be made with some other colony.

Spring Management.—Next in importance after a good and safe system of wintering, we place spring management; and, with a view to honey production, the first requisite is to obtain large colonies by the time the honey harvest begins. It is of no use for hives to possess the maximum of population when the harvest is nearly over. It must be a very weak colony, or a very poor queen, that cannot raise the population to 'boiling point' during a plentiful harvest, but after this the bees are merely *consumers* instead of *producers* until another harvest arrives. Evident as the truth of this statement must appear to any one for a moment considering the matter, how many there are who keep bees on the plan of getting their colonies up to full strength just when the honey harvest ends! It may be from want of care, knowledge, or experience, or from not doing things at the proper time, or, indeed, from a variety of causes; but certain it is that with many bee-keepers this is the rule and not the exception. Again, therefore, we reiterate our former advice to keep no weak colonies, but to make it a rule to have all strong and full of bees by the end of May or the beginning of June, when the white clover commences to bloom. Sometimes and in a few districts surplus may be obtained from fruit-bloom, but in this climate, with its frequent cold and late springs, it is very rarely indeed that bees can do more than supply their own necessities of daily consumption before the time above mentioned, even in our southern counties. If we take the 7th of June as the general time at which colonies should be ready for the harvest, then six weeks previously—*i.e.*, about the 25th of April—preparations should commence for raising the population of the hives by stimulating to brood-rearing, by judicious and careful brood-spreading, by the union of weak colonies, and, in all these operations, by the least possible interference with or manipulation of the bees and their hives. By such means we venture to say that half-a-dozen strong colonies thus prepared will collect more honey than a score of others which have been left to their own devices or treated according to ordinary methods, whether the object be comb or extracted honey. Our ideas on stimulation and brood-spreading we hope to give in future 'Hints,' also advice as to the manner and time of the general spring overhauling or examination of colonies,—which is *not yet*.

Patents.—A more general inclination appears to be springing up amongst English inventors of apicultural appliances to resort to the Patent Office for protecting their inventions. The recent reduction in fees for patenting, and the reasonable sum for which provisional protection for a period of nine months can be obtained, together with the unscrupulous manner in which any unpatented article or idea is seized upon by other interested persons, readily accounts for this development. Mr. Root, editor of American *Gleanings*, some time ago made the following statement in regard to the same subject from an American point of view:—'I am very glad indeed to note the disposition among bee-keepers of forbearing to copy the works of each other, patent or no patent. The supply dealer who would unhesitatingly copy something well known to be the property of another, without getting the privilege of doing so, by purchase or otherwise, would very likely loso more than he made, so strong is the disposition of our people to give honour to whom honour is due.' He would be a very bold man who would endorse this statement if it were applied to Englishmen. And yet we have always believed that honour and honesty prevailed, to say the least, in as great a degree on this side of the Atlantic as on the other. The subject has of late been repeatedly brought under our notice by inventors submitting their novelties for inspection and advice, almost invariably with the proviso that the invention is to be protected, and must therefore be considered private and confidential. Amongst the last articles with which we have been favoured are a standard frame, and sections of various sizes and shapes, by our old friend, Mr. James Lee, which bid fair in our estimation to hold the field against all comers. So great is the ingenuity displayed, and yet so perfect the simplicity, that we shall be much deceived if the invention does not command a very large sale both in England and America, in both of

which countries we understand that it is intended to take out patents. More at present we must not divulge, except that it is in contemplation to provide perfect machinery for turning out the articles in the large quantities likely to be demanded. The specimens forwarded to us are of the most perfect and accurate construction, and when arrangements are completed, can be supplied at the present prices of good frames and sections both here and in America. We believe that hives on the same principle will be supplied also, but a specimen of these we have not yet seen. The reproach, if there be any truth in it, that for our best ideas in apicultural appliances we are indebted to Americans, is surely being wiped out, and now we are going to turn the tables upon our cousins. Can we fancy ourselves sending sections to America, and actually manufacturing them in that country, instead of receiving them from thence? 'So the world wags, so the world wags.'

Preparing Hives, Supers, &c.—We well remember the late Mr. Pettitt, of Dover, exclaiming loudly against painting hives, because, as he maintained, it prevented the escape of moisture from the interior, an idea contrary to the natural instinct of the bee, which leads it to cover the interior walls of its domicile with varnish, or propolis, to prevent the escape of heat or moisture. Hence we find experienced apiarists recommending a coating of varnish to be applied to the inner walls of modern frame-hives. A composition, formed of two-thirds resin and one-third beeswax, should be melted, mixed well together, and applied warm with a brush, care being taken to brush it well into the corners and cracks, thus saving the bees much labour at a season when time and labour mean honey. Mr. Heddon recommends lubricating the hive bearings with tallow, and rubbing it well into the wood, when, he says, you will enjoy the luxury of removing covers, supers, honey cases, &c., in the twinkling of an eye, without a snap, jar, or bee protest.

ASSOCIATIONS.

BUCKS BEE-KEEPERS' ASSOCIATION.

The annual meeting of this Association was held on Thursday, February 3rd, at the George Hotel, Aylesbury, when there were present the Rev. J. Hill in the Chair, the Rev. E. K. Clay, the Rev. F. S. Sclater (Hon. Secretary), Mr. W. Sturdy, &c. The Secretary read the annual report and balance-sheet.

The Committee congratulated the Association on the fine exhibit of honey which secured for Buckinghamshire the fourth prize in Class I. at the recent South Kensington Show, and which included honey collected from thirty-eight different bee-masters. Lectures have been given at Amersham and Wolverton, whilst the bee-tent has been usefully employed at Stoke Green, High Wycombe, Denham, Mentmore, and Oving. Experts' work has been chiefly done through the local advisers, to whom the thanks of the Association are due. The honey census has been very partially collected this year, through the failure of members to make a return as requested. Returns were received from fifty-five members. Honey yield:—Extracted, 2918 lbs.; 1-lb. sections, 2596; 2-lbs., 81; other supers, 193 lbs.; wax, 48 lbs. The Association was able to sell at a good price the whole of the honey taken to London. From the balance-sheet it appeared that there was a deficit on the year of 12*l.* 1*s.* 2*d.*

Baron F. de Rothschild, M.P., was elected President for the ensuing year, and the other officers were re-elected.

The annual drawing for three hives afterwards took place, the winners being, 1st, Mr. W. Garrett, Fenny Stratford; 2nd, Mr. J. Elliott, Wicken; 3rd, Mr. C. Middleton, Eton.

DERBYSHIRE BEE-KEEPERS' ASSOCIATION.

The fifth annual general meeting of the Derbyshire Bee-keepers' Association was held in the Guildhall on Friday, 21st January, 1887. Col. Sir H. Wilmot, Bart., V. C. C. B., presided, and amongst those present were the Rev. J. Wadham, and Messrs. W. Newton, W. Wilks, W. Handley, D. Cooper, A. Cooper, Holmes, Fearn, Johnson, Austin, Sims, Boden, Atkins, and Hodder. We extract the following from the Report for the past year:—

'The Committee, in setting before you their fifth Report, are glad to be able to congratulate the members of the Association upon the sure and steady progress which has characterised their efforts for the past year, and upon the permanent position it has now attained in the county. The number of subscribing members is now 350, which, with twenty-three donors to the prize fund, makes a total of 373 as against 267 last year. After paying all expenses, we are able to carry forward a balance of 25*l.* 16*s.* 2½*d.*; the sum being 7*l.* 8*s.* 4*d.* in 1885. The annual show for 1886 was, by permission of the Committee of the Derbyshire Agricultural Society, held in connexion with theirs, on September 8th and 9th, and was a great success. The number of exhibitors was about the same as last year, but the apparatus showed a marked improvement. The quantity of honey was much larger, and its quality pronounced by the judges to be of the first order. The Committee, in concluding their Report, desire to point out the good accruing to the Society from the various lectures held in different parts of the county, and trust that the members generally will do all in their power to advance the cause of the Association.'

The President (the Duke of Devonshire) and Vice-Presidents were re-elected. Mr. Copestake was re-appointed Treasurer, and Mr. W. T. Adkins, Secretary. The Secretary then moved the re-election of the District Secretaries, which was carried. The draw for the two prize hives next took place, the successful members being Mr. G. Griffin, Clay Cross, and Mr. J. Dowens, Foxlow, Buxton. It was decided to allow the Secretary a sum of 10*l.* per annum for his services, instead of 5*l.* as hitherto accorded.

ESSEX BEE-KEEPERS' ASSOCIATION.

The Annual Meeting of the Essex Bee-keepers' Association was held on Saturday evening at the Corn Exchange, Chelmsford, Mr. G. H. Aubrey presiding. There were also present Messrs. F. H. Meggy (hon. secretary), Reginald Christy, Leonard Brown, Edmund Durrant, F. Maryon, W. T. Braddy, W. Debnam, and others. The annual report and accounts were presented. The report recapitulated the work of the year, and recommended that from the 1st of January agricultural labourers should be admitted to the benefits of membership on the payment of a subscription of 1*s.* per annum. The financial statement showed that, notwithstanding the heavy expenditure during the past year entailed by the holding of county shows, and the large number of members visited by the expert and receiving copies of the *Bee Journal*, the income for the year balanced the expenditure and left a small surplus to carry forward. It was shown that there were about ninety new members, the total number of members and donors being over 300.

HEREFORDSHIRE BEE-KEEPERS' ASSOCIATION.

The annual meeting of the members of the above Association was held on Monday, January 31st, in the Woolhope Club Room, at the Free Library, when there was a good attendance. Dr. Chapman was voted to the Chair.

From the annual statement of accounts it appeared

that there was a balance in favour of the Association of 13*l.* 19*s.* 4*d.* The report stated that the season had been moderately favourable, and fair yields were reported from most districts, the honey not being contaminated with honey-dew so much as last year. Three private demonstrations had been given in the gardens of members with most satisfactory results, and the report dwelt upon the advantages of this plan to cottage bee-keepers who did not attend horticultural shows. Demonstrations were also held in connexion with the horticultural shows at Hereford (St. Peter's) and Ross. Honey fairs had been organized in different parts of the county with much success, and the Association had taken a part in the Exhibition at South Kensington.

On the election of officers Mr. Rankin was unanimously re-elected President. The Committee, with the exception of those members who had resigned, were re-elected, and the Rev. James Oakley, the Rev. — Herbert, Mr. Edgar Morris, and Mr. Spencer were added to it. Mr. Watkins was re-elected as Secretary, the work he had done for the Association having been warmly eulogised. Messrs. Hole and Meadham were elected experts, and Mr. F. James representative to the Bee-keepers' Association.

GLAMORGANSHIRE BEE-KEEPERS' ASSOCIATION.

The annual meeting of the Glamorgan B. K. A. was held at Cardiff on Thursday, February 3rd, C. F. Gooch, Esq., in the chair. The Report and Balance-sheet were passed. After the election of Committee and Chairman, the latter referred in very warm terms to the past services of the Hon. Sec., Mr. E. Thornton, and he was sure all the members would regret that he felt it necessary to resign. A cordial vote of thanks was given to Mr. Thornton for his past services. Mr. Clark, Penarth, was elected hon. sec., and Mr. W. Gay, 4 Flora Street, Cathays, Cardiff, was elected hon. asst. sec. and expert for the County. Messrs. D. A. Thomas, Ysgnboaven, and C. F. Gooch, Cardiff, were elected representatives for the County. Mr. W. Gay, certified expert of the B.B.K.A., and expert of the county, then read a paper on the profitable management of a hive, &c. A general discussion followed. A vote of thanks to the chairman concluded the proceedings.

LEICESTERSHIRE BEE-KEEPERS' ASSOCIATION.

The general annual meeting of this Association was held on Saturday, January 29th, at the Old Town Hall, Leicester. Mr. Carter, of Mill Hill House, Leicester, was voted to the chair.

The Report and Balance Sheet were adopted. A discussion then followed on the ways and means of improving the position of the Association; and as the employment of an expert to visit the members was thought likely to be beneficial in this direction, it was proposed by Mr. Meadows, seconded by Mr. J. Cooper, and carried, that the prize-money usually offered for appliances be applied towards paying the expenses of an expert.

Proposed by Mr. Fosbrook, seconded byMr. Foxon, and carried, That arrangements be made for an expert to visit the apiaries of such members as required his assistance.

After a short discussion on the difficulties members found in disposing of their honey, it was proposed by the Rev. M. A. Thomson, seconded by Mr. Meadows, and carried unanimously, That a honey fair be held in the current year in accordance with Rule X.

The business of electing Committee and Officers was then proceeded with. The re-election of the Secretary was coupled with a gratuity of three guineas, and a hearty vote of thanks to him and his wife. A special vote of thanks to the Leicestershire Agricultural Association for their liberality was passed. The meeting closed with a vote of thanks to the Chairman.

Both before and after the meeting Mr. W. P. Meadows interested the bee-keepers present by exhibiting and explaining the working of the Jones-Heddon and the Bebington hives.

OXFORDSHIRE BEE-KEEPERS' ASSOCIATION.

The annual meeting was held at the Clarendon Hotel on Wednesday, January 26th, when there was a large number of members present. The Right Hon. the Earl of Jersey (President) occupied the Chair.

The Secretary presented the balance-sheet, from which it appeared that the total receipts amounted to 33*l.* 7*s.* 3*d.*, while the expenditure reached 35*l.* 2*s.*, being a balance on the wrong side of 1*l.* 14*s.* 9*d.* The report stated that the number of those who have joined the Society during the year was no less than 61; thus, notwithstanding the loss of 25 members, there is a net increase of 36 members, bringing the total membership of the Society from 102 to 138. A spring tour had been undertaken by Messrs. Perry and Cobb, the former taking the northern, the latter the southern part of the county. The autumn tour was carried out by Mr. Cobb alone. Nearly every member was visited, and had his bees examined, and advice given to him. It was decided not to hold a show this year, partly on account of the expense incurred the previous year, and partly because it was hoped that an offer which was made to secretaries of flower shows would accomplish the same object as a honey show. The bee-tent again visited several places, viz., Henley (two days), when the Berks Association also sent a tent with exhibits of honey, bee-furniture, and appliances; Trinity College, on the occasion of the Royal Horticultural Show at Commemoration; Headington, Watlington, Woodstock, and Shipston. At the latter place the Rev. H. Barton acted as expert.

On the election of officers Earl Jersey was re-elected President; the Rev. F. C. Dillon, Secretary; the Vice-Presidents were re-elected, and the following were elected Local Secretaries:—The Rev. H. Sturges (Witney), the Rev. W. Neame (Islip), the Rev. D. Thomas (Cuddesdon), the Rev. C. Williams, of Benson (Watlington district), Mr. W. C. Hayes (Chipping Norton), Mr. Scrivener (Bicester), Mr. C. Harris (Oxford), and Mr. T. Hughes, of Combe (Woodstock district).

At the conclusion of the meeting the Earl of Jersey, with characteristic generosity, handed the Secretary an amount to cover the deficit on last year's account.

HORSFORTH DISTRICT BEE-KEEPERS' ASSOCIATION.

The bee-keepers of Horsforth have met, and come to the following conclusions:—1. The society shall be called the Horsforth District Bee-keepers' Association. 2. The annual subscription shall be 2*s.* 6*d.* 3. That monthly moveable meetings at convenient centres be summoned by the hon. secretary, for purposes of mutual improvement in bee-culture. 4. That 5*s.* be at once forwarded to the hon. secs. of the Yorkshire Bee-keepers' Association, thereby qualifying the Hon. Sec. and another member as County committee-men, in accordance with the recent resolution of the Y.B.K.A. 5. That bee-keepers within the district desirous of joining the Association be hereby invited to communicate at once with the district secretary. 6. That the district hon. sec. be N. F. G. Burniston, Esq., Throstle Nest Apiary, Horsforth, near Leeds. 7. That the treasurer and district adviser be A. W. Henderson, Esq., Bank Terrace, Horsforth.

The members at the close of the meeting congratulated themselves upon being the first to have the honour of taking this new departure in our county.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Upper St. Martin's Lane, London, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *King's Langley, Herts (see 2nd page of Advertisements).*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

WINTER MANAGEMENT IN CANADA.

[815.] You did me the honour of asking me to occasionally pen a few lines for the *Journal*. Nothing would afford me greater pleasure than to do so if I were persuaded that anything I could write would be of interest or profit to your readers. I certainly owe you and your constituents a debt which cannot be paid by me in this way. I have no faith in my ability to teach the British bee-keeper the mysteries of his craft. I know them now too well to doubt their skill in these, or to esteem my own in any way superior to theirs. I am conscious enough of the fact, however, that I owe both them and you a heavy debt of gratitude, and would discharge it (in part) in this way. But how shall I place the first item to the credit side of my account with you? is the question that suggests itself to me. I repeat, Not by a lesson in bee-keeping certainly. Let present circumstances then suggest my topic.

It is ten o'clock p.m. The family have retired, and I sit alone at the table with a bright fire blazing in the grate. The temperature of the room is about 65°. The glass outside registers 3° below zero. What a difference in temperature between the within and the without! You say, How intensely cold it must be to cause the mercury to drop so low! Methinks your sympathies go out to the unfortunate men and women who are compelled to be out on such a night, and you bless your stars your home is in Old England and not in Canada. What are McKnight's feelings you, perchance, ask yourself? Well, they are those of the poet when he wrote—

> 'Backward, turn backward, O Time, in your flight,
> And make me a boy again just for to-night!'

for I hear the merry jingling of the sleigh-bells and the rollicking laughter of a happy sleighing party out for a pleasure drive. Wrapped in their warm robes they skim over the well-beaten snow road, the hoofs of the horses keeping time to the 'tinkling of the bells,' and the hilarity of the party raised to its highest pitch by the bracing air of a genuine typical Canadian winter night. The earth is blanketed with the 'beautiful snow,' a foot and a half thick; the air is as still as death, the moon looks down from a cloudless sky and her rays are reflected back with such brilliancy that the very stars are chased out of the firmament. It is not a night for Canadian youth to huddle together by the 'ingleside,' but such an one as they love to meet with one another on the hill-side and engage in the exciting sport of 'toboggen' sliding—strike across country on snow-shoes, or drive out in sleighing parties. It is, I repeat, just such a night as Canadian youth delight in, and will suffer nothing by comparison with one of sleet and wind or of heavy hanging clouds without either.

Pray don't pity us because of the severity of our climate. We don't need your commiseration on this score. But how, you ask, does it affect your bee-keepers? Well, it necessitates a different mode of winter management from that practised by our British brethren. It makes winter protection a necessary element on success. We winter in two ways—indoors and out. The indoors method I need not dwell upon, as you do not need to practise it. Every house has its cellar, and most people keep their bees where they keep their roots and perishable vegetables. A few have 'bee-houses' specially constructed for wintering their pets. Those who winter on the summer stands use double-walled hives, or something better than a simple outer case. These double-walled hives, however, are the exception and not the general rule.

I shall attempt to briefly describe the method generally practised in outdoor wintering. It consists of an outer case with some kind of packing between and above. This outer case is constructed in the following way, with modifications here and there. First make a rough stand five or six inches wider every way than the bottom board of the hive. Now set your hive on this stand with the centre of the bottom board over the centre of the stand. The stand will then project five or six inches every way beyond the outer limits of the bottom board. Now make a case the outer limits of which will correspond with the outer limits of the stand. This case must be open at bottom and top; the top of this case should be six inches higher in front than back and about twice the height of the hive. When this case is placed over the hive it rests on the stand, which makes a nicely fitting bottom for it. The front of this case must have an opening below corresponding with the entrance to the hive. Now erect a nice little bridge between the hive and the outer case that will permit the bees free access to the outer world, and preventing the packing when put in from blocking up this passage. The hive is now surrounded by a case with an empty space between and around of some five inches or so. Before packing between and above the hive itself must be prepared. This is usually done by spreading a quilt over the top of the bar-frames. This quilt should be a little larger than the top of the hive. The empty super is now placed on the top of the hive and this keeps the quilt securely in its place. The case is now ready for the packing, and the best material for this purpose is cork-dust, such as fresh grapes from the Mediterranean are usually put up in. The next best is dry saw-dust, such as may be procured in a factory where dry deals and boards are repped in; saw-dust from green logs should never be used. Cut straw, dry leaves or chaff will do, but not so well. Whatever material is used it should be well packed around and over the hive right up to the roof of the case. The quilt over the bars precludes the possibility of the packing getting to the cluster. A roof or top, projecting a little over the frame, is now put on and the work is done. Some people place a device on top of the bars and under the quilt to allow the bees a passage over the top bars. I have put them away both with and without this device and found no difference in wintering. The front of the case being higher than the back causes the roof to shed the rain freely. I did up fourteen stocks in this way last year and the rain came through the winter finely. I have over forty put away at the present moment, and I have no fears for their safety.

Probably you prepare your own bees for winter in some such way. If so this paper will be neither interesting nor profitable to your readers.—R. MCKNIGHT, *Owen Sound, Ontario.*

BEE-KEEPING IN CANADA.

[816.] A correspondent under the above heading, *B.B.J.* p. 605, writes in a tone which can scarcely be passed in silence with justice. I am in a position to speak with knowledge of the Caledonian Show; it is not far from the home of my parents, not far from my present place of residence, and I have been in the place many times.

In the first place, the Caledonian Show is not what we know as a large show. The directors of such a show as the Caledonian generally know but little about bee-keeping, and it is considered one of the most insignificant of the departments. The prizes only extend to the best 10 lbs. of extracted, or, in a mistake, they may even say strained honey, and the best 10 lbs. of comb honey.

Now, at just such a show I have seen a pan of broken comb take the first prize from beautifully filled sections, and the dark inferior grades of honey get the preference because the judges knew nothing about bee-keeping, and they think such looks more natural.

We must remember that bee-keeping has made wonderful progress during the last few years, and the knowledge the bee-keepers possess has not yet been transmitted to the general public, or, at least, only in a small measure. So much so, that at our Provincial Exhibition last year, when showing goods to the judges, they glanced over the list, and then remarked, 'Wax and honey extractor, is that not all the same thing?' But is that an indication of the state of apiculture in our land? Far from it.

The hives spoken of at Caledonia were either frame-hives, or they were there as a joke, or a curiosity. I have no hesitancy in saying this as *bee-keepers* know better in that locality. No intelligent bee-keeper uses the box-hive. I have been amongst many bee-keepers during the last five or six years; and with the exception of the second year when I went to a box-hive locality, and purchased seventy-nine stocks in such hives and transferred them during fruit-bloom, I have rarely seen a box-hive.

There are, however, quite a few in exceptional localities in Ontario, although, I believe, more in the province of Quebec. Ontario is the honey-producing part of Canada, at present however. These remarks, coupled with my previous one on Canadian hives, will, I think, throw sufficient light upon the question. I regret that Mr. S. T. Pettit, the President of our O. B. K. A., should have found it necessary to leave England before the time when the British and Canadian bee-keepers met; there would have been another Canadian to assist in throwing additional light upon bee-keeping as conducted here. The conversational powers of a few (three) must have been, at times, taxed to the utmost.

I have had the pleasure of meeting with Mr. J. A. Abbott of Southall, London, England, and spent an afternoon partly journeying by rail with him. I learned very much of interest and solid profit from him, and had a very pleasant time. It is a bad season to judge of bee-keeping in Canada, but I think Mr. Abbott will have gleaned sufficiently to be in a position to endorse the majority of the statements made, or the tenor of them.—R. F. Holtermann, *Brantford, Canada.*

DOUBLING.

[817.] Last season I followed the instruction in your admirable article on doubling, and as a consequence had large stocks and no swarms. I have six hives, and my average was sixty-one pounds per hive, section and extracted, taking the $4\frac{1}{4} \times 4\frac{1}{4}$ section at one pound. The previous season, commencing with three stocks and increasing by natural swarming to six, I had an average of eighty-three pounds per hive. The difference in the season would account for this increased result. There is, however, one drawback to this method of doubling; that is, brood in the upper boxes. One of my hives had four bodies, holding twelve frames in the lower hive, ten in the others, and had brood in the middle frame of all the upper boxes in September, which was a great inconvenience in extracting; and when I had worked the hive gradually down, I found the lowest compartment quite empty of brood or honey. In another hive what held twenty-two frames in the body and twenty in the upper, I had brood in both, and a quantity of drone-comb drawn out between the two tiers of frames and well up into some of the upper ones. I therefore think that some kind of queen-excluder should be used above the frames in the lower body; not excluder-zinc, which I consider an abomination, and would, in all probability, make the bees swarm; but either by strips of wood on the top of the frames leaving the required width between, or a properly made board to fit the hive, with long strips cut out of it, or the top bar made wide enough to prevent the queen going up. I have no difficulty with queens in my sections, and the bees seem to find no hindrance to their working by having to pass through the narrow strips of the section. The hive that gave me the best result last year was one with twenty-five frames in the body and sections above. I had 108 lb. sections on at one time, and full of bees, but owing to the season had only sixty-three completed. Can you suggest any plan to overcome this difficulty?—W. H. Jenkins.

[You do not say so, but we presume you have your frames fixed by broad shoulders or some other means, to the regulation distance apart of about $1\frac{1}{2}$ in. from centre to centre. This, we think, is the main cause why you have brood right up into the top storey. We keep the two lower storeys for brood and bring the combs to $1\frac{1}{4}$ in. from centre to centre, but when we add our third storey the frames in this are placed at $1\frac{3}{4}$ in. from centre to centre. The queen seldom rises into this storey as the combs are too thick for her to lay in, and they form a better barrier to the storey above than any queen-excluder. We tried boards with slits in them the same as Heddon now uses before we used excluder zinc more than twelve years ago, when we worked large supers, but as they were constantly shrinking and expanding they did not exclude the queen from the supers. We have placed a square of enamel cloth over the frames $1\frac{1}{2}$ in. smaller all round than the top of the hive, and this prevents both queen and bees from passing up the centre, which is the most likely place for the queen to use in going up. It is carrying out the principle of the Stewarton hive, in which the openings into the supers are on either side of the brood nest. Another way is, when you put on a third storey to remove all combs containing honey in the lower hives, and to put them into the upper hive, placing them $1\frac{3}{4}$ in. from centre to centre, and giving the lower storeys empty combs for the queen to lay in. When combs are only used for extracting there is not such an objection to the queen going up as there is when sections are worked. Still an endeavour should be made to keep the queen to the two lower boxes and secure honey in the two upper ones.—Ed.]

HONEY IN ZINC VESSELS.

[818.] Having in November and December read the various opinions in the *B. B. J.* as to the danger of keeping honey in zinc vessels, and having myself in use a large galvanised iron reservoir obtained during the summer from Messrs. Abbott, I without delay bottled off its contents, which had been standing about ten weeks, into glass jars, and at the same time made a careful chemical examination. I may say that the vessel had been in use all through the summer and autumn, the quantity of honey it contained varying according as I drew off and sold, or added to the store. It had never been cleaned or emptied. As the result of analysis, I could find no trace of zinc in any of the clear honey bottled off. I found, however, on washing out the dregs with hot water, that the washings had a metallic taste, and contained a considerable quantity of zinc salts in solution.

I draw the conclusion that the action on the hive is confined to the film of honey in immediate contact with it, which remains adherent and does not diffuse through the main mass unless it is rubbed off and stirred up. As there must always be risk of such disturbance, the use of

unprotected galvanized reservoirs cannot be considered free from danger.

To arrive at something certain as to the energy of the chemical action, I, on the 30th of November, cleaned a piece of sheet zinc six inches by two inches, having a surface of twenty-four square inches. And, after weighing it on a delicate chemical balance, I immersed it in half a pound of clear pure honey contained in a covered glass beaker which I kept on the chimney-shelf from day to day, occasionally warming on the hob and stirring with a glass rod. I took out the zinc a few times, washed it with distilled water, and re-weighed. The weights were as follows:—

		Grammes.
Nov. 30, 1886.	Original weight of clean zinc	=29·0250
Dec. 1 ,,	Weight after immersion	=29·0134
,, 2 ,,	,, ,, ,,	=29·0075
,, 14 ,,	,, ,, ,,	=28·9990
Jan. 29, 1887.	,, ,, ,,	=28·9910

Total loss of weight in two months=0·034 grammes or 0·52 grains of metallic zinc. The action is thus seen to be slow and of no great amount even with the assistance of heat and stirring.

I intend to varnish the inside of my reservoir. Can any of your readers say whether the ordinary varnish sold as 'White Hard' spirit varnish, would answer the purpose of protection without giving a taste to the honey?—R. E. Lloyd.

DISTRICT ASSOCIATIONS.

[819.] I am delighted to see your leader on this subject, it gives all your readers the lines to work on, and I need not say how my ideas exactly coincide.

'Amateur Expert,' who is always terse and business-like, even in his most playful vein, places me under obligations to him for his valuable hints. I shall make it a point to try and pierce the veil of his incognito, which he freely admitted nearly fell (or was torn) from the statue at one of the Canadian gatherings.

These very hints of 'A. E.' (without any effort on my part) have brought me letters asking for advice as to the formation of District Associations, and my help in lecturing in various parts of our county: with each of these I have complied, and so will continue to the fullest extent of my leisure, but our county is so large and individual exertion so seemingly barren of results, that a score or two working enthusiasts might be imported from our champion counties with the greatest advantage to us. My time, however, is so fully occupied by business that I must often let the will go for the deed.

There is a splendid harvest of young bee-keepers who are longing for the Society and mutual pleasure of association, but the *workers* (may I say the HIGH and DRY?) are hard to move. They do not fear

'Lest they
By thousands tumble from their honey'd dome
Into a gulph of blue sulphurous flame.'

Enthusiasm is wanting amongst those who have learnt their bee-keeping by practice and current literature without association, and they appear now desirous of sipping their nectar under their own hedges. To all such 'high and dry' I now appeal for the sake of those others who want light and leading. The Yorks B. K. A. have now (before 'A Worker's' suggestion in a recent issue was made) passed a resolution inviting the bee-keepers of various parts of Yorkshire, without more ado, to *form themselves* into District Associations, no matter how small. These are to be entirely self-governed and self-officered; they are to have the fullest and freest liberty, and by payment of 5*s.* per annum per Association to 'the County,' can have the advantage of their secretary and another member being on the committee, with themselves having all the privileges of membership. So that now nothing remains but for our brethren in various parts of Yorkshire to organize themselves, and this will be perhaps best done by one or two in each district calling, by cheap advertisement in daily paper, a meeting of bee-keepers to discuss and carry out the idea. I would suggest as a start that—

Bradford,	Scarborough,	Doncaster,
Skipton,	Walton,	Brighouse,
Harrogate,	York,	Wakefield,
Thirsk,	Hull,	Goole,
Middlesbrough,	Barnsley,	Harrogate,

be the first great districts (each of which is equal to some counties), to again subdivide some time in the dim and distant future by the natural process of development, *i.e.*, by the simple one of

'When the church can raise a choir,
Why then they'll raise a song,'

no matter how small the choir. So pull yourselves together, ye 'high and dry,' and let us have some public spirit for the sake of the bees who sacrifice so much for us and our service. Don't let us be saturated with the spirit of this ditty:

'We're honey-and-wax-young-men,
We're wood-nails-and-tacks-young-men,
Oh, isn't it funny, we're going to make honey
Turn fast into money-yonng-men.'

It's all very nice to think of

'A golden hive, on a golden bank,
Where golden bees by alchemical prank
Gather gold instead of honey.'

'Ho, ho, to ye,
Woe, woe, to ye'

if ye turn from the warning in the sulphur-pit couplet.—R. A. H. G., *Horsforth, near Leeds.*

SELECTED DRONES.

[820.] The question of the survival of the fittest amongst bees is a very important one, and no doubt ought to receive more attention than it does at present. We all know that some queens possess better qualities than others, and we ought to preserve those good qualities as far as we can; but *how* can this best be done? I know, sir, that your advice is very valuable on this subject, and ought to be acted upon; but without *all* act upon it, the *few* will not obtain the results expected.

I think it is quite as important that the drones should be selected as the queens, and here arises the difficulty. Supposing the strongest two hives in the apiary containing two of the best queens are chosen in the spring for breeding queens and drones, it is absolutely necessary that the drones be flying *before* any others within a radius of several miles, or the probability is that the young queens will not mate with the drones prepared for them, and as skeps generally produce drones early, there is but little time for getting a lot of selected queens impregnated by selected drones. Virgin queens (bees) are somewhat like the tender sex of another species, they prefer selecting their own husbands, and will not always accept what is offered them.

Early last June, a hive was found to be queenless and without brood. A frame of brood was at once given and a queen raised from that brood—or eggs, rather. Her majesty began to lay and, in due course, young bees appeared, two-thirds of which were, in appearance, beautiful Ligurians. They are hybrids, of course.

Now, sir, there was not a single Ligurian within a distance of THREE miles, and therefore this young queen *must* have been mated by a drone from that distance. There were plenty of English bees *near* and doubtless many drones at that time, but she rejected them.—A. Green, *Selston, Alfreton.*

RESUSCITATION OF BEES.

[821.] On Wednesday, the 19th ult., a thaw set in, and upon visiting my hives I found that, although shaded as they were, the bright half-hour's sunshine about noon had tempted the bees out, and about two hundred had paid the penalty, and were to be found upon the snow and ice, apparently dead. I picked up about a score, and while engaged in conversation with another person I suddenly became cognisant of a movement on the part of the bees in my hand. As it was evident the bees had been revived by the warmth, I heated a saucer in an oven, and gathered up sufficient (of the to all appearance dead bees) to fill the saucer, and after changing the saucer a time or two for one freshly heated, I had the pleasure of seeing nearly the whole of the bees revive, and return to their respective hives. It was the more remarkable as some were taken from pools of icy water, and others had small particles of snow and ice clingnig to their bodies.—G. N. Railway.

MADAGASCAR BEES.

[822.] As communication between Madagascar and the rest of the world is very slow, I have only just heard of the question asked by 'Colenso' as regards the cubic contents of the hollow tree stated by me to contain about two hundred and eighty cubic feet. I must thank 'Colenso' for kindly pointing out a very stupid miscalculation, and apologise to your readers for the same. What I should have written was about sixty cubic feet, if in my mind's eye I had not seen a tree of twice the diameter.—C. P. C., *Madagascar.*

PHYSIOLOGICAL QUERIES, &c. (756).

[823.] No reply to the former query has yet appeared in the *Journal*, which I regret, as it is an interesting subject, and evidently has an important bearing on the new system of inversion advocated by a certain section of American apiarists, and more lately brought before the notice of bee-keepers in this country. The discussion raised relative to the latter question is instructive. I had several opportunities of closely examining the Jones-Heddon hive at the Colinderies, and from personal observation I can fully endorse the remark of J. M. Hooker (766) that hives of such thin material are not sufficient for use in this country, and I should never think of using them without an outer case, and the hive then becomes too expensive.

'Devonshire Dumpling's' advice to cottagers to try the Jones-Heddon appears to me too ridiculous to notice, and I can only account for such advice by supposing 'D. D.' is endeavouring to grind his axe at the expense of the poor cottager. I am one of those looking for information that can be relied on, and if 'D. D.' will give the particulars of his management, and if he would also add the district where his apiary is situated, it would give additional interest to the information. The one or two isolated cases given without any particulars furnish no data sufficiently reliable to be a guide, and my advice must also be to go slow with the new system.—W. Soar, 1 *Sussex Villas, Kensington.*

PHYSIOLOGICAL QUERIES: INVERTIBLE HIVE.

[824.] I beg J. Lee's pardon if I misapprehended his views as to invertible hives. I see it is the Jones-Heddon hive he objects to, and not so much the upside-down plan; and I am glad to see J. Lee is making a hive like the Jones-Heddon, but one that is adapted to the British climate. So far, so good. I see he seems astonished at my advice to cottagers to try it. Now, Mr. James Lee, you say that your British Invertible hive requires no arguments to prove its utter unsuitability to the cottager, as it required more skill and judgment to work it; I say 'work' it, as some of my cottage bee-keepers might not understand what 'manipulate' means. I did not think of advising a cottager that was not a bee-keeper, or a *Journal* reader, or one unskilled. Does 'J. L.' think, after the establishment of the Bee-keepers' Association for so long, and the *British Bee Journal*, with all its useful information, that cottagers have made no progress? Surely they are not all kid-glove bee-keepers that subscribe to the *Journal;* and what does the *Journal* teach them? I venture to say that there are more skilled cottage bee-keepers on the weather side than on the lee of the ship, or the advice of the *Journal* cannot be much good; but yet it has come from a monthly one to a weekly one, and I fancy, Mr. Editor, it is going the right road to be twice a-week soon. I hope we shall get some skilled cottagers if we have none now equal to the gentlemen bee-keepers. And how much more skill does it require to work the Jones-Heddon hive? Are there British Invertible hives in this country? Has J. Lee had any experience with either? by his inquiry I should say not; and as my invertible hive is not very easy to work, I think the Heddon hive will be easier—more honey I do not expect.—Devonshire Dumpling.

INVERTIBLE HIVES. (793.)

[825.] I see J. M. Hooker (803) is coming down on poor 'Devonshire Dumpling' like a thousand of bricks. Poor 'Dumpling!' I hope he will escape in safety, as I have the pleasure of knowing him and am well acquainted with his mode of working. I tried inversion last season, although on a smaller scale than 'D. D.' 'J. M. H.' is not far from the mark in supposing 'D. D.' 'to be one of these.' I don't suppose 'D. D.' will mind me telling 'J. M. H.' that he had one swarm last summer from a right-side-up hive. I can assure 'A. E.' that a hot dumpling is a 'rum article' for 'fancy dealers' to close their teeth on. I think 'D. D.' knows a little about manufacturing hives, as well as how to use them and the profits to be derived from them. I have used cheese-boxes and they answered very well, and they are much thinner than the Jones-Heddon. Our friend Neighbour has got a 'nobby hive' which no doubt will suit J. M. Hooker, as it is ¾ inches thick and prettily decorated with thumb-screws. Hurrah for Mr. Simmins! I am sure we are all glad to see his notice in the valuable *British Bee Journal*—good luck to them all, dealers, fancy dealers, upside downers, and rightside uppers.—Apple Dumpling.

The Bee's Sting a Useful Tool.—From lengthened observations, Mr. W. F. Clarke, a Canadian, has come to the conclusion that the most important function of the bee's sting is not stinging, but its use by that wonderful creature as a tool. Mr. Clarke says he is convinced that the most important office of the bee's sting is that which is performed in doing the artistic cell work, capping the comb, and infusing the formic acid by means of which honey receives its keeping qualities. The sting is really a skilfully contrived little trowel, with which the bee finishes off and caps the cells when they are filled brimful of honey. This explains why honey extracted before it is capped over does not keep well. The formic acid has not been injected into it. This is done in the very act of putting the last touches on the cell work. As the little pliant trowel is worked to and fro with such dexterity, the darts, of which there are two, pierce the plastic cell surface, and leave the nectar beneath its tiny drops of the fluid which makes it keep well. This is the 'art preservative' of honey. Herein we see, says Mr. Clarke, that the sting and the poison-bag, with which so many of us would like to dispense, are essential to the storage of the luscious product, and that without them the beautiful comb-honey of commerce would be a thing unknown. This is certainly a most wonderful provision of nature.—*Iron.*

Replies to Queries.

**** *In their answers, Correspondents are respectfully requested to mention in each instance the number and the title of the query asked.*

[774.] Separation of Wax from Pollen.—I always found extracting wax was a messy job, as after boiling and straining through a cloth, as described by 'Amateur Expert,' I buried cloth, wax, and all, because it was so messy, and I made up my mind never so do any more; but speaking to neighbour Killick on the subject, he told me it was an unnecessary trouble, and offered to lend me his extractor, which offer I soon accepted, as he said there was no mess; and having a few old combs that I had not disposed of, I followed his instructions, and, to my surprise, every morsel of wax was extracted, leaving all the pollen, &c., easily to be cleared away, and the wax wanted no more refining. It is the best and simplest one I ever saw, and every cottager should have one that has only got a few stalls of bees, as I think we ought to produce more wax, and get it made into foundation, instead of purchasing so much, now it can be done so easy with little experience, and the times won't allow us to be too extravagant.—T. B.

Queries.

Queries and Answers are inserted free of charge to Correspondents When more than one query is sent, each should be on a separate piece of paper.

Our readers will greatly oblige us by answering, as far as their knowledge and observations permit, the Correspondents who seek assistance. Answers should always bear the number and title placed against the query replied to. Any queries unanswered in this way will be answered by the Editor and others.

[826.] *Crates of Thirty-five Sections.*—Have any of your readers tried crates of thirty-five sections instead of twenty-one? If so I should be glad to hear their experience thereon. Having a hive suitable for storifying, and wishing to work for sections, I thought of having two crates made to carry thirty-five sections to each. There are nine frames in the hive at present, well covered, and with plenty of sealed stores, but when full it takes fifteen frames.—West Somerset.

[827.] *Moveable Frame-hive.*—To whom is due the honour of the invention of the moveable frame-hive? Give the date or year.—Douglas.

[828.] *Glass Hive.*—Who was the first inventor of glass hives?—Douglas.

[829.] *Poisonous Honey.*—Is honey produced from the rose-laurel and the yellow azalea proved to be poisonous? If so, how does it not poison the bees when they gather it?—Douglas.

Echoes from the Hives.

Plymstocks, South Devon, Jan. 26th.—The sun coming out brightly, and the bees flying, I ventured to examine and see if there were sufficient stores. Found them rather short, so shall have to try Mr. Simmins' latest dodge. Received with what equanimity I could the first sting of the season. I have been wintering my three stocks under enamel cloth, and am amazed at the result. They were *very* short of stores when put into winter quarters, owing to an illness which prevented me feeding, and yet they are not entirely without now, and wonderfully strong. One lot was a single driven stock and they were fairly fed up before I got ill, they are now nearly as strong as the others. Your advice in the 'Correspondents' column, Mr. Editor, made me hesitate before trying this plan, but 'Useful Hints' decided me for it, and I'm glad he did.—Trevor Saynor.

Malvern, January 28th.—To-day being beautifully fine, and bees flying freely, I took the opportunity to examine my hives. I found all in good condition, scarcely any stores touched, and in one stock breeding had not only commenced but there was a quantity of sealed brood, and a good number of young bees flying out for the first time. This is the more remarkable considering the sharp frosts we have had.

Swanmore, Bishop Waltham, January 29th.—After a long spell of very bad weather we have at last a few mild days on which it has been possible for the bees to get out for a flight, and of which they have not failed to avail themselves. The general report of the district is that so far the bees seem to have wintered well. My own are all apparently strong and no signs of dysentery.—H. W. West.

North Leicestershire, January 31st.—From December 6th to 31st inst. (fifty-one days), the bulk of the bees kept to close quarters; a few ventured out on the 18th and 19th, but only to perish in the snow. Losses are almost nil, but some stocks are very short of food, apparently through late breeding in October and November. Since the 26th the bees have been in flight daily, and seem very much inclined to while away their time in robbing all round.—E. B.

Uttoxeter.—On February 2nd I was called upon by the coachman from Miss W——, with a request to go and see her bees. I said it was too early to examine bees yet. But, he said, Miss W—— is afraid they will be short of food. Impossible, I said, I attended to them myself in the autumn and they had abundance. Being urged I promised to go on the following Friday if it was a nice day. Friday, February 4th, was a fine day, so I set off to the place in question, a distance of about five miles. The coachman acting as my assistant, we commenced with No. I, a bar-frame hive. As soon as the roof was lifted off I said, Something has been the matter here, and was answered that the hive had been blown over late last autumn, and George (servant-lad) said he had put it all right again. Well, I said, if bees will winter this way, they will winter nearly any way. The bars were all out of place, nearly cornerways in the hive, the quilt laid on anyhow just over the cluster, there was an opening in the left front corner that I could get both my hands in right into the hive without touching quilt, hive, or bars. Well, I thought, this is enough to kill them all, such a winter as we have had. But the bees were healthy and well and numerous. Their loss had been very small. It was only the work of a minute or so to put all right, in doing so I saw a patch of brood in various stages on one bar about as big as a five-shilling piece. The straw hives (four or five in number) were then examined, and floor-boards cleaned; all were in good order. Lastly, another bar-frame hive was looked at, which was all right, only some of the quilting a little damp; this was changed, and all made snug and comfortable. I may say, in conclusion, that this lady has kept bees now for some years, devoting time, attention, &c., to them, and every penny profit realised is devoted to charitable purposes,—an example worthy of imitation.—F. Harper, *Uttoxeter, Staffordshire.*

Fakenham, Norfolk, February 7th.—Not having opened one of my hives since August, and as I did not feed in the autumn (though I had taken 60 lbs. from it), I was anxious to know what state the bees were in. January 28th being a very fine and warm day I could not resist the temptation to look at them (against instructions). To my great surprise I found grubs and brood on two frames which appeared to be in a forward state; there was plenty of food, very few dead bees, and quilts perfectly dry. Is it not unusually early? I did not winter them in the usual way; instead of cutting holes through the combs, I left the empty crate on, so that the bees could run over the top of the frames. I put the wood dividers down to keep the bees from getting through, and then put the quilts in the crate. I also put a piece of glass across, so that I could see the bees, and left them on twelve frames. I peeped at them several times during the very cold weather, and always found them between the frames and crate, going from one end of the hive to the other, and appeared very healthy. I have now reduced the number of frames, which is usually done in the autumn. I generally winter in that way, and do not reduce the number of frames till early spring, and always find them in good condition.

Alton, Feb. 10.—Mice in Hives.—Thinking it would be of interest to the readers of your valuable *Journal*, I herewith give an account of my finding traces of mice in my hives. As soon as the snow was gone, and the weather warm, and the bees were out having a cleansing flight, I went round my apiary to open the roofs of hives to give them an airing; when, on opening one of the hives—the bees being placed at the back part of the hive—I saw a lot

of dead bees on the top of the covering, all wet, and shook them all off. I went again next day, when I saw a lot more all bitten to pieces. I went again the following day, when there was another lot, having a hole bitten between the wings, also a large plum-stone carried up with them. Being at once convinced that the bees did not carry the stone up, I put in a trap for mice. Next morning there was one mouse, second morning caught three, third morning two mice, making a total of six mice. The trap was placed on the floor-board inside of hive in front of the division-board. I have now twenty stocks of bees, which all appear very strong. I examined the one where the mice had been at play, and found no damage done by them, and, to my delight, found a large patch of brood, this being on Saturday the 5th, it being a very warm day; so, judging by the one, the bees are very forward in this district. I have not lost one stock this winter.—F. G. Ayling.

Lismore, Feb. 12.—The weather is very dry here, not a drop of rain these last eight days, some of which were sunny and fine, allowing bees to fly freely. Some days, however, there were frosts at night and light cold wind by day, so that the bees, on the whole, have not had as much benefit from the crocuses—which are now out in sheets—as might have been expected; still I have seen a good many little orange-coloured loads going into the hives. I think my bees have now given up going back to the old site. I stuck a big branch of laurel in front of the hives, and this seems to have at last attracted their attention to the change of locality. Besides crocuses and snowdrops and gorse, we have in the gardens here a good deal of a dwarf heath now in bloom, on which the bees work most energetically on fine days, seeming to prefer it to anything. A good deal of hazel is also out. I alluded some time ago to a plan I have adopted of feeding my hives in spring without removing roofs or disturbing the cushions, &c. I found last spring that some hives which I tilted up a tiny bit in front, and fed by pouring in a little syrup, got on just as well as the hives on which I had elaborate and scientific feeders; so, for convenience sake, I have adopted the plan to all my hives, only making an entrance at back of hives by means of a tin tube about $\frac{1}{4}$ inch wide, with a little flat rim or collar at one end by which to secure it after the wall of the hive has been bored to receive it. The pipe is made long enough to project $\frac{1}{8}$ inch beyond the inner wall of the hive. When not open for syrup to be poured through, I keep it closed with a cork. By means of a funnel with bent pipe I pour into each hive at evening its allowance of syrup. In one or two hives I have a little trough beneath the pipe on the floor-board about $\frac{3}{8}$ inch deep, with wooden sides and coarse perforated zinc cover, through which the bees can suck the syrup. The trough can hold about two wineglassfuls of syrup. In this way any one can feed twenty or thirty hives in a few minutes, and there is no fear of disturbance of quilt or roofs and covers put on insecurely. Also where hives are exposed to wind, and have to be secured, they need not be disturbed. I bore the hole for the pipe at the centre of the back of the hive, about I inch above the floor-board. My frames are at right angles to the door. For ladies who do not like lifting off heavy hive-roofs this plan is very convenient.—F. W. C.

Navan, Ireland.—The past honey season has been a fairly good one in this district. I commenced the season with seventeen stocks of bees, thirteen in bar-frame hives and four in skeps. I obtained about 600 sections and nearly 200 lbs. of extracted honey. From three of the straw hives I got very little, as they swarmed and took to the sections badly. The other gave me over forty sections. My bar-frame hives seldom swarm. From my best hive I took eighty-three sections and 16 lbs. of extracted honey; another gave me 62 lbs. of extracted and twenty-one sections. I intended to have sent some honey to the Irish Association's Honey Market, but getting what I considered fair offers, I sold privately. I got from 9*s.* to 12*s.* per dozen.—M. D.

NOTICES TO CORRESPONDENTS & INQUIRERS.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

J. Drinkall.—*Why Drones do not store Honey.*—There are physiological reasons why drones are not able to store honey. The tongue is much shorter than that of the worker, and the body is much larger, so that the drone cannot put its head and thorax into worker-cells. The gland structures are also different, and those producing the ferments necessary to convert the cane sugar of nectar into the grape sugar of honey are so altered and diminished in size as to make them incapable of yielding this secretion. In bees there are four systems of glands which yield secreting fluids. In the drone, System I. is entirely wanting, but, according to Schiemenz (*Ueber das herkommen des Futtersaftes und die Speicheldrüsen der Biene*, 1883), this system exists in the worker for the purpose of supplying a secretion for brood-food, and also for feeding the queen, with probably additions from the other glands. System II. in the drone is different, the secreting cells of the worker being replaced by fat-cells. In System III. the glands, as well as the reservoirs attached to them, are much smaller in the drone; therefore secretion could not be produced in nearly the same quantities as in those of the worker. If these three systems are brought into action either together or separately in the conversion of nectar into honey it is evident that drones are not physiologically adapted for this purpose.

W. M.—*Size of Extractor.*—You have now evidently found out one of the disadvantages of not having all your frames Standard size. The Raynor extractor will take your largest size; the cages of this are 11$\frac{1}{4}$ inches.

Beeswing.—*Putting Swarms Together.*—Throw both the swarms on to a board in front of the hive that they are to occupy, and let them run in. Secure the least valuable of the two queens if you happen to see her; do this just before dusk. Prop up the front of the hive at least an inch to give them a clear passage. You can sprinkle each lot with syrup scented with a few drops of essence of peppermint if you like, but there is no absolute necessity.

De B.—Buttercups, gorse, and broom secrete honey, but not to a great extent; they are, however, prolific in the production of pollen, especially gorse and broom. The horse-chestnut produces both honey and pollen, the former rather copiously.

F. H., *Kent.*—*Queen-excluding Zinc for Dividers between Sections.*—There seems every reason to suppose that this, or zinc, or tin, having even larger holes, would be less obstruction to the work of the bees than close sheets of wood or tin, while preventing bulging of the combs. Try it by all means.

W. T. C.—No. Glass is quite unsuitable for putting on the top of frames at any time. You can exhibit honey at a show of the B. B. K. A. without being a member.

Honey-drop.—*Stimulating.*—It is best to commence by uncapping cells around the brood-nest, and when brood is in progress give thin syrup. Whether your stocks have sufficient stores depends upon the amount contained in the ten frames upon which they were wintered. If well filled there should be plenty.

R. G.—We hope to be able to give insertion to the engravings of your plan of reversing frames in our next issue.

J. A. B.—*Poisonous British Honey.*—We have had no experience of poisonous honey, and are doubtful if there is any dangerously poisonous nectar secreted in this country.

Hawes Bee-keeper.—A sample of your honey having been submitted for analysis to Mr. Hehner, he states that it is unadulterated.

Putting Swarms Together.—I may say I join swarms in the usual way. If they come off on the same day they join without any precautions. If some time has elapsed I smoke well the hive I am going to unite to and throw the other swarm on to board in front of hive, and sprinkle with thin syrup. If I see any signs of fighting I at once open out the hive and mix the bees with the last swarm, sprinkling all with syrup. Young bees do not often require you to use scented syrup. The mere fact of opening out the hive stops the fighting to a great extent by frightening the bees.—Arthur J. H. Wood.

A Rectification.—In my letter to the *British Bee Journal*

of January 20th, I said, in reference to a 2-lb. section sold by Mr. Blow of 8½ × 4½ dimensions, 'I should like them better if they were 2 inches wide.' I find they are 2 inches and the mistake arose from my using very thin tin dividers with them and wooden dividers with the 1-lb. sections running parallel with them, so that the 2-lb. did not come nearly so far to the end of the crate as the 1-lb. At the same time I ought not to have made the mistake, as it is depreciating what I look upon as a most beautiful section, as in my opinion it is very necessary to keep down the height of sections if we wish them finished quickly and well. I only used these sections on three hives and they were well finished off in every case.—ARTHUR J. H. WOOD, *Ripon.*

Show Announcements.

Giving Name and Address of Secretary, Date and Place of Show, Date of Closing Entries. Terms: Three Insertions and under, Two Shillings and Sixpence; additional insertions, Sixpence each. No charge made to those Associations whose Shows are announced in our general Advertising Columns.

July 11–15.—Royal Agricultural Show at Newcastle-on-Tyne. Entries close May 12. J. Huckle, Kings Langley.

August 3–5.—Yorkshire Agricultural Society at York, Secretary, H. L. Rickards, Poole, near Leeds.

Business Directory.

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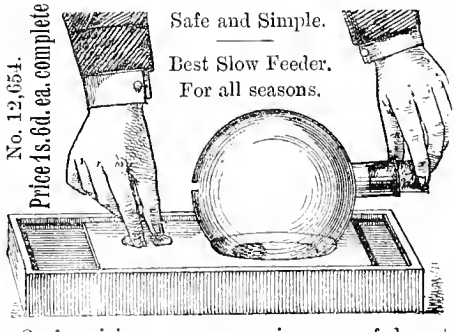
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THE BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, St. Martin's Lane, W.C.'

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Editorial, Notices, &c.

THE MEXICAN BEE.

There is not so much known about the different bees in the American Continent as might be expected. In these days when there is a great tendency to obtain everything new and novel, and when there is such a great desire to introduce new races, it cannot be unprofitable to glean what information we can of the numerous varieties. By the Mexican bee many have thought that there is only one variety, 'the Stingless Bee;' but besides this we are assured there are many other kinds domesticated in that country. We doubt but that many of the species which are said to be without stings do in fact possess that organ, though often a feeble one, and are not readily provoked to use it. Great attention is paid to the Mexican bees by the natives, not so much on account of their honey, although remarkably rich and delicate, as for the sake of the wax. In Yucatan there are colonies of them domesticated consisting of five or six hundred hives.

Hernandez describes several kinds of the insect in Mexico,—one resembling the European, and which produces a honey like our own. It is domesticated by the Indians, who lodge the swarms, he says, in the hollows of trees. A second species is noticed by the same author as smaller than ours, so much smaller as to resemble 'winged ants,' and as without stings. They build their nests, which are composed of several layers, in the rocks, and also suspend them on trees. Their honey is dark-coloured and high-flavoured. The cells are of smaller dimensions than those of the domestic bee; and it is probable, though not so stated, contain only brood; the honey being found in small cups. The larvæ, it appears, are esteemed a delicacy, for the historian tells us that when roasted and seasoned with salt they have the taste and flavour of sweet almonds. This species collect their honey and live much in the same way with the honey-bees of Europe. Other small stingless bees are mentioned, which establish themselves underground in nests of a globular shape, but of very coarse workmanship; their honey, too, is inferior, and is never used but in default of better. In domesticating their bees the Mexicans lodge them in hives formed of short logs of wood, from 2 to 3 feet long, hollowed out about 5 inches in diameter, having the ends filled with clay and a hole for entrance bored on one side, about half-way between the ends. They are suspended in a horizontal position from the branches of trees.

The interior of a hive presents, like that of a humble bee, a confused and irregular appearance. The combs, which have but one series of cells, are placed, some in a vertical position and others horizontal. They are grouped together in an oval mass, and occupy nearly half of the internal space, while the other half is stored with the honey cups. The honey, as has been stated, is deposited in small globular bags, hung round the sides of the hives, or placed at the bottom; some of these receptacles are more than 1½ inches in diameter; and in many instances are so connected together that, as in the case of cells of common honey-comb, one side serves for two cups, thus combining economy and strength. And these magazines of honey being altogether apart from the brood-combs, and noways connected with them, great facility is afforded in depriving the bees of their stores. The honey is thin in consistency, but of a very agreeable flavour, and gives out a rich aromatic perfume. The wax is coarse, and of a brownish yellow; propolis does not appear to be used. The Mexican bee is smaller by one-fifth than the European. Many of the species to which has been given the denomination of Melipona or Trigona are described as having no stings, or at least so feeble a weapon as to produce no sensible injury; and from this circumstance they are known in the Spanish colonies by the name of Angelitos, or little angels. The population of a hive is generally under a thousand.

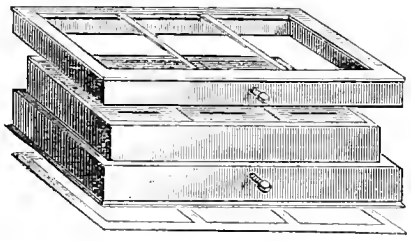
A glance at the habits of some of the many varieties cannot fail to be of great interest, although the introduction into our apiaries of the so-called 'stingless bee' might be the reverse of an improvement. We have noticed that the honey in Mexico obtained from these bees was thin in consistency, and this in a country where the bee flora is almost perfect; what could we expect on these shores? perhaps the honey would not keep and soon turn sour. The fact of the Mexican bee storing its honey in large cells, or cups, and always away from the brood; what a revolution in apiculture its introduction would cause!

NEIGHBOUR'S INVERTIBLE PRIZE SECTION RACK.

This improved rack was shown by Messrs. G. Neighbour & Sons at the great show at South Kensington last autumn, where it was awarded a silver medal.

The illustration shows so clearly the arrangement that only a few words will be needed in explanation. The outer casing of the rack is really in two halves, and each can be used separately if required. It will be seen that the rack consists of a tray composed of a frame with two bars across the bottom and four sides, which are half the height of the sections. The frame is just half a bee-space in thickness, so that to have the full bee-space an additional frame, also half bee-space thick, has to be placed between the tray and the tops of the hive-frames to secure the requisite bee-space. Three rows of seven sections are put in this tray, and they are wedged up by means of a screw working against a board at the ends of them. The top tray is the exact

counterpart of the lower one, and slips over the sections. These two form an outer casing, and by screwing up the sections the whole case can be inverted, or by merely



removing the upper half any of the sections can be removed separately.

These cases are used in pairs for storifying, are made with either wood or metal cross bars, and by the above arrangement are perfectly interchangeable and invertible. Great care must be exercised in inverting just at the right time. The centre sections are always more advanced than those at the sides, and the inversion should only take place when the outer ones are in a sufficiently forward state.

BEE-KEEPING IN IRELAND—HONEY PRODUCE IN 1885.

In reference to the above the Registrar-General states: An effort was made to ascertain the extent to which bee-keeping is followed in Ireland, and the degree of success attained in this special branch of rural economy. The inquiry related to the season of 1885. As this was the first occasion on which any inquiry in relation to this subject was made, it can be readily understood that the returns were in many instances defective; and that therefore the results obtained do not set forth the actual fact with that accuracy and completeness which may be hoped for in future, now that it is known that returns regarding this question will be collected each year with the agricultural statistics, and that the enumerators have, according to instructions, pointed out to all those bee-keepers who had not hitherto kept any records on the subject, the desirability of noting the particulars as to which information is required. From the tabulated returns it will be seen that there were 21,327 swarms at work in Ireland during the season of 1885, of which 6927 were located in the province of Leinster; 6554, in Munster; 6440, in Ulster; and 1406, in Connaught. Of the 21,327 swarms, 5283 were at work 'in hives having moveable frames,' and 16,044 'in other hives.' The quantity of honey produced, according to the returns, was 302,297 lbs. Of this 89,226 lbs. were produced in the province of Leinster; 103,528 lbs. in Munster; 83,348 lbs. in Ulster; and 26,195 lbs. in Connaught. Of the 302,297 lbs., 105,414 lbs. were produced 'in hives having moveable frames,' and 196,883 lbs. 'in other hives.' It was stated that 187,481 lbs. was 'run honey,' and 114,816 lbs. 'section honey.' The average number of pounds of honey to each hive having a moveable frame was—For the whole of Ireland 20 lbs.; in Leinster, 19 lbs.; in Munster, 20 lbs.; in Ulster, 20 lbs.; and in Connaught, 24 lbs. The average number of pounds to each of the other hives was—For Ireland, 12 lbs.; in Leinster, 11 lbs.; in Munster, 15 lbs.; in Ulster, 11 lbs.; and in Connaught, 16 lbs. The average quantity produced in all hives was: In the whole of Ireland, 14 lbs.; in Leinster it was 13 lbs.; in Munster, 16 lbs.; in Ulster, 13 lbs.; and in Connaught, 19 lbs. The number of stocks brought through the winter of 1885–6 amounted to 15,362, of which 4493 were in hives having moveable frames, and 10,869 in other hives. According to the returns collected there were 7165 lbs. of wax manufactured in 1885, of which 1573 lbs. were from hives having moveable frames, and 5592 lbs. from other hives.

JOTTINGS BY AMATEUR EXPERT.

'Mel sapit Omnia.'

We have got over the annual meeting and the election of the Committee of the B. B. K. A. Mr. D. Stewart's place is filled by the Rev. G. V. Oddie, a very good bee-keeper, but a gentleman probably not known by a dozen members of the B.B.K.A. outside his own county. This gives Herts four seats on the Committee of the B.B.K.A., and three of the four gentlemen live almost within sight of one another. Very handy this if they all happen to be on the same sub-committee.

The Rev. G. Raynor carried his 'reform bill,' lowering the qualification from 1*l.* to 10*s.*, although some of us 'Radicals' wanted 'universal suffrage;' but if defeated we still hope.

I was struck with the fact that each of the candidates got fewer votes this year than formerly, although the 'roll' of the B.B.K.A. is larger than it ever was. The reason, I learn, is, that members generally used greater discrimination than heretofore, and instead of giving all their votes, only voted in many cases for those they actually knew. This is a healthy sign. Many votes were also lost through the members failing to 'brass-up' in time.

The meeting was not only a very full one, but was marked by the keen interest taken by all present in the proceedings. While this is so, we never need fear as to the future of the B.B.K.A. I was sorry Mr. Cowan was not present, but he is very hard at work to get his work well in hand before April, when he hopes to see the scenery between the 'Atlantic and the Pacific.' Imagine him toiling, as he often does, for the good of others, from 6 a.m. to 10.30 or 11 p.m., and all for the love of it, and yet we sing, 'Britons never shall be slaves!' It reminds me of an old girl who said, 'She not only liked work, but she actually *loved* it.'

Our President was as gracious as she always is. Her Ladyship is a true 'Queen Bee' in her benevolence as well as her devotion. To her influence with H.R.H. we mainly owe our great show at the 'Colonial;' from her purse came a good slice of the prize money; nay, more, to her Ladyship we are mainly indebted for the privilege of getting the medals cast from the die of the Indian and Colonial Exhibition medals; and, to crown all, when there was no wherewithal to pay for the medals, from our President's purse at once the money was forthcoming.

After this, some of the exhibitors who had almost despaired of ever getting their medals will understand why they have been so long in coming. Doubtless most or all will get them by the time this sees the light; and, for myself, I confess when I do get mine I shall value it more for the sake of the Baroness than for its other associations. While jotting about medals, may I say I think the new pattern B.B.K.A.'s medals are very pretty; the device of the 'queen-bee' has given place to a view of a modern apiary. Had I been in position to have given a suggestion at the time the thing was being considered, I should have gone in for a bust of her ladyship the President. What do the readers of the *B. B. J.* say to that?

I have run out my allotted space before I turn to 'jot' about passing matters. May I tell 'F. H., *Kent*,' if he uses queen-excluder zinc for dividers he will not get his sections finished smooth, but they will be undulated, like the waves of the sea on a small scale. What a rebuke from the bees themselves to those who advocate narrow sections for storing as being more 'natural!'

How homely friend McKnight makes us feel one can almost see him sitting by his 'ingleside' over yonder, burning his 'midnight oil' for us. The two 'Dumplings' are jovial fellows. Mr. Grimshaw, too, I imagine, is in the height of his element; from quoting poetry he turns poet (?) himself. Well, I hope he will get plenty of

work to do. There is nothing beats good 'chatty' meetings of district associations and lecturing in small villages for getting new members: and as to my incog. he must be joking, as I thought long ago he had seen through it, considering at Jermyn Street he has more than once been within nose-rubbing distance of—AMATEUR EXPERT.

BRITISH BEE-KEEPERS' ASSOCIATION.

The Annual General Meeting of the above Association was held on Wednesday, February 16th, 1887, at 3.30 p.m., at the offices of the Royal Society for the Prevention of Cruelty to Animals, 105 Jermyn Street, St. James's. The spacious Board Room was crowded by an audience of ladies and gentlemen, amongst whom were the Baroness Burdett-Coutts (President of the Association), the Hon. and Rev. Henry Bligh, the Rev. F. T. Scott, the Rev. George Raynor, the Rev. Dr. Bartrum, the Rev. F. G. Jenyns, the Rev. J. L. Seager, the Rev. F. S. Sclater, the Rev. W. E. Burkitt, Mr. Hooker, Captain Bush, Mr. Zehetmayer, Mr. Otto Hehner, Mr. Sambels, Mr. Haviland, Mr. Blow, Mr. Lyon, Mr. Baldwin, Mr. Meggy, Mr. Horton Ellis, Dr. Walker, Mr. Eastty, Mr. Athawes, Mr. Henderson, Mr. Bunbury, Mr. Neighbour, Mr. Graham, and Mr. Willard.

Owing to the absence of the President at the commencement of the proceedings, her Ladyship having a prior engagement, the Hon. and Rev. Henry Bligh took the chair temporarily.

The Secretary read the minutes of the last Annual General Meeting, which were confirmed.

Mr. Horton Ellis moved a vote of thanks to the retiring officers and committee for their services during the past year. As one of the county representatives, he wished to say that bee-keepers all over the kingdom must feel indebted to those gentlemen whose zeal in their duties had done so much to benefit the cause.

The Rev. W. E. Burkitt seconded the motion, which was carried unanimously.

At this juncture the Baroness Burdett-Coutts arrived, and presided till the conclusion of the proceedings.

Her ladyship moved that the report and balance-sheet issued for the year 1886 be received and adopted, with a vote of thanks to Mr. Kirchner, the auditor, which resolution was passed unanimously. The following is the report:—

The Committee have much pleasure in presenting to the members their report for the year 1886. In no previous year has the work of the Association been more successful; this success being mainly due to the support and patronage which has been given to the Association by their Royal Highnesses the Prince and Princess of Wales, and other members of the Royal Family, and to the loyal and pecuniary support given by the County Affiliated Branches.

Considerable progress has been made both in North and South Wales, associations having been formed in the counties of Glamorgan, Cardigan, and Montgomery. The Committee are much indebted to Dr. G. Walker and Mr. W. B. Webster for their lecturing tours in North and South Wales.

As indicated in the last report, the Committee have taken steps to provide a work on bee-keeping in the Welsh language. The 'Skep' pamphlet translated into Welsh was issued early in the year, and efforts are now being made (the Committee being aided by some residents in Wales) to translate and circulate 'Modern Bee-Keeping' in Welsh also.

The Royal Agricultural Show of 1887 will be held at Newcastle-on-Tyne. The Committee consider this an opportune time for the Association to endeavour to advance and consolidate their work in the North of England. With this view they have resolved to arrange for a lecturing or expert's tour during the ensuing spring months.

Considerable assistance is also needed towards the development of the work in many of the larger counties, such as Yorkshire, and others. The funds at the disposal of the Committee being very limited, they are reluctantly compelled to withhold assistance in some cases where it is urgently needed. It is therefore hoped that the aims and objects of the Association will be made more widely known by the members and others interested in the progress of our home industries.

During the past year the work of the Committee has been more than usually arduous. In addition to the ordinary standing sub-committees, it was found necessary to appoint other special sub-committees for certain particular work.

Seventeen general committee meetings have been held during the year, in addition to a large number of sub-committee meetings.

The sixth edition of 'Modern Bee-Keeping,' consisting of 10,000 copies, has been issued during the year. A special sub-committee was appointed for the revision of the work, and a fair proportion of this edition has already been disposed of.

Four quarterly meetings have been held during the year for the discussion of various subjects connected with bee-keeping. As intimated in the last report, the usual papers have been dispensed with at these meetings, and in place thereof discussions have been introduced upon various subjects. Several new inventions have been submitted to these meetings for criticism.

A special social meeting to welcome the representatives of Canadian bee-keepers attending the Indian and Colonial Exhibition, consisting of Mr. Pettit, President of the Ontario Bee-Keepers' Association, and Messrs. S. Corneil, D. A. Jones, and R. McKnight, was held at South Kensington on October 6th. Upwards of 100 sat down to luncheon. Dr. May, Educational Commissioner for Ontario, and Pasteur Descoulayes, Secretary of the Société Romande d'Apiculture, were also present. Subsequently a conference was held in the Conference Room attached to the Indian and Colonial Exhibition, at which nearly 250 members and friends attended.

Examinations for third-class certificates have been held in the counties of Buckinghamshire, Glamorganshire, Hampshire, Hertfordshire, Lancashire, Leicestershire, Middlesex, Somersetshire, Staffordshire, and Wiltshire. The Committee again call the attention of county secretaries to the absolute necessity of making the arrangements for these examinations strictly in accordance with the rules laid down. On one or two occasions during the past year the examinations have failed entirely through the insufficient arrangements, much needless waste of time and money on the part of the examiner and the candidate being caused thereby.

Three candidates have taken second-class certificates during the year.

The Committee are much indebted to the following gentlemen for acting as examiners or judges at county shows, viz., Rev. C. G. Anderson, Rev. Dr. Bartrum, E. H. Bellairs, W. Broughton Carr, R. R. Godfrey, W. N. Griffin, J. M. Hooker, the Rev. F. G. Jenyns, the Rev. F. S. Sclater, the Rev. J. Lingen Seager, and Dr. G. Walker.

The Committee much regret that they have not been able to provide for the exhibition of the historical collection of appliances, ancient and modern, presented to the Association by Mr. T. W. Cowan in 1885. The provision of a permanent museum for this and other objects of the Association only awaits the necessary funds.

Three exhibitions have been held during the year.

1. At Liverpool, in connexion with the show of the Royal Horticultural Society. In consequence of the early date at which this show was held, it was found impracticable to arrange for a thoroughly representative display of honey, &c. The department allotted to bees and bee-keeping appliances, although small, proved one of the most attractive in the exhibition. The Committee were supported most efficiently by the executive of the Lancashire and Cheshire Association, 10*l.* being contributed by this affiliated branch towards the expenses. The Rev. Dr. Bartrum, Mr. W. Broughton Carr, and Dr. Walker, officiated as judges, to whom thanks are due for their gratuitous services.

2. At Norwich, in connexion with the Royal Agricultural Society's Annual Exhibition. This exhibition of honey and appliances was by far the best ever held in connexion with the Royal Agricultural Society. The entries were large and the exhibits numerous, and of good quality, occupying a space of 200 feet in length by 20 feet in width. The Bee Department was honoured by a special visit from their Royal Highnesses the Prince and Princess of Wales, the Royal Princesses, the Ladies-in-Waiting, with other distinguished visitors from Sandringham. The Royal party made a thorough inspection of the various exhibits throughout the department, being conducted by the Chairman, Mr. T. W. Cowan, and the following members of the Committee, who explained the uses of the various exhibits, viz., the Rev. G. Raynor, the Rev. J. Lingen Seager, the Rev. F. G. Jenyns, Captain Bush, R.N., Mr. J. M. Hooker, and Mr. H. Jonas.

3. At South Kensington, the Committee were enabled to arrange for what may be considered the grandest and most effective display of honey and bee-keeping appliances that has ever taken place in this country. Such an exhibition was rendered possible by the kind permission of H.R.H. the Prince of Wales, Executive President of the Royal Commission of the Indian and Colonial Exhibition, and by the support given by the President of the Association, and those who subscribed liberally to the Donation and Guarantee Funds.

The Committee were most loyally supported, both pecuniarily and otherwise, by a large number of the county associations. Reference to the balance-sheet will show that several of the county branches contributed largely to the fund raised for carrying out the exhibition, apart from the ordinary statement of income and expenditure. A separate balance-sheet relating to this show, together with a list of contributors to the donation and guarantee funds, is published at the close of this report.

The thanks of the Association are due to Sir Philip Cunliffe Owen, Secretary to the Royal Commission, who was most assiduous in his labours to promote the success of the exhibition, and also to the President and Council of the Royal Horticultural Society, who gave material assistance. Messrs. T. W. Cowan, C. E. Fletcher, R. R. Godfrey, and W. Martin, also merit the thanks of the Association for performing the most difficult task of judging so large a quantity of exhibits. The Committee have much pleasure in announcing that His Royal Highness the President of the Royal Commission has been pleased to permit the exhibitors at this exhibition to receive medals struck from the dies as used by the Royal Commission.

The Committee feel sure that this act on the part of His Royal Highness, and the munificence of the generous donor who provided for the cost of these medals, will be highly appreciated, both by the exhibitors and the members of the Association generally.

The thanks of the Association are due to Mr. T. W. Cowan and Rev. F. G. Jenyns for donations of books to the Library.

The Committee consider that the Association has much reason to congratulate itself on the work of the past year. A great stimulus has been given to the industry of bee-keeping throughout the United Kingdom, and the demand for honey has considerably increased,

Great progress has been made by Honey Companies and other agencies in bringing the value of pure British honey under the notice of the residents of London and other large towns.

The Finance Committee have again to report their satisfaction with the manner in which the accounts have been kept by Mr. Huckle. The receipts and expenditure have been exceptionally large in connexion with the several exhibitions held during the year, so that the work devolving on the Secretary has been very heavy. The assets of the Association having been carefully valued, they are glad to report that the accounts for the year show a balance on the right side.

The Rev. G. Raynor said that the pleasing duty had fallen to his lot for several years past of proposing a vote of thanks to the Council of the Royal Society for the Prevention of Cruelty to Animals for the gratuitous use of their Board Room for committee and other meetings, and he had much gratification in asking the meeting to vote a similar resolution on that occasion. He need not enlarge on the benefit derived by the Association from the kindness of the R. S. P. C. A., and he thought the members present could hardly express their thanks in sufficiently warm language. From his own personal knowledge he felt sure that the goodness of the Royal Society was highly appreciated, because they of the B. B. K. A. would certainly be in a difficulty if deprived of the advantage of meeting in that beautiful room.

The Rev. F. T. Scott had much pleasure in seconding Mr. Raynor's proposition. The Society conferred an immense advantage on the B. B. K. A. by placing their Board Room at its disposal. It was a most comfortable room, and well suited to the requirements of the Association, which was thus saved considerable expense. Some charitable institutions proposed to commemorate the Jubilee year by providing themselves with new offices, but he did not think the Association would be able to do that, nor was there any necessity while they had such excellent accommodation.

The resolution was carried unanimously.

The President returned thanks on behalf of the Royal Society for the Prevention of Cruelty to Animals in her capacity as President of the Ladies' Committee of that body. It was a source of great pleasure to the Society to know that their Board Room was occupied from time to time by an Association whose objects tended to the furtherance of those principles in which the Society was deeply interested.

The Rev. Dr. Bartrum moved the re-election of the President, Vice-Presidents, Treasurer, Auditors, Analyst, Librarian, and Secretary for the year 1887. He considered it a great privilege to be allowed to propose, as he had done in previous years, the re-election of the noble lady in the chair that day, who stood at the head of their Association, and who was, in fact, their queen-bee. She was an excellent example of the advantage to the community at large of ladies taking their proper place in the social scale. It was a great gain to the cause of bee-keeping that their Society was led by one who showed so much active sympathy with the work, and who was always ready to assist with her counsel and benevolence—indeed, the Association could scarcely go on were it not for the valuable aid given by the Baroness. The Vice-Presidents proposed to be elected were the heads of the various County Associations, among which were the Princess Christian, some Dukes and Earls, and, generally speaking, persons occupying leading positions in society. He moved that Mr. W. O'B. Glennie be re-appointed Treasurer. That gentleman held an official position in the Bank of England, and had been a staunch friend of the cause and a member of the Committee many years. With regard to Mr. Otto Hehner, Mr. Henderson, and Mr. Huckle, they were well known to the members of the Association, and their claims on account of past valuable services were indisputable.

The Rev. F. G. Jenyns seconded the motion, which was carried unanimously.

The President, in acknowledging the honour conferred upon her, said it was difficult to express how much she appreciated it. Every opportunity that she could find to promote so useful and important an industry as bee-keeping would be utilised for that purpose. A great many public objects which had arisen, developed, or been created during the reign of Her Majesty the Queen, would during the present year, no doubt, be brought prominently under notice. It might be that so small an industry as the one in which they were engaged would not obtain a very large share of public attention; but she thought that if statistics were published of the agricultural and food developments during the last fifty years, the production of honey could not be left out of consideration, and their Society must take credit for having popularised an industry which had added greatly to the welfare and amusement of all classes. She was afraid that any advice of hers in regard to management would not be very valuable, but they would remember that the bees managed their own affairs extremely well, and in that respect did not give much trouble to their queens. (Laughter.) It was a great pleasure to be for another year associated with those officers of the Society who had always co-operated with her in the kindest way when she required any information. (Applause.)

The Secretary read the results of the election of Committee for the year 1887, the following members being successful:—T. W. Cowan, Hon. and Rev. H. Bligh, Revs. G. Raynor, F. S. Sclater, F. T. Scott, J. L. Seager, E. Bartrum, F. G. Jenyns, G. V. Oddie, Captains Bush, C. D. Campbell, Messrs. W. H. Dunman, J. M. Hooker, H. Jonas, G. Walker.

Captain Bush moved a hearty vote of thanks to the scrutineer of the voting-papers (Mr. Dunstan), for the satisfactory manner in which he had performed his troublesome and uninteresting task.

The Rev. F. S. Sclater seconded the vote, which was unanimously carried.

The Hon. and Rev. Henry Bligh said a sad task had now fallen to his lot, and that was to move a resolution with respect to their late friend, Mr. Fox Kenworthy, who within a few weeks had passed away, and left vacant an onerous post in the bee world. Perhaps there was no one better qualified to speak of that gentleman, and the good name he had left behind, than himself (Mr. Bligh), because he had acted with their lamented friend as co-secretary of the Middlesex Bee-keepers' Association for the last two or three years. He (the speaker) never met with any one more thoroughly devoted to his work, or one who was more ready to give his time and labour, at considerable self-sacrifice, to their cause. At the time he was taken from them his good work was beginning to develope itself and show the results of continuous efforts. Mr. Kenworthy was known to them not only as Secretary of the Middlesex Bee-keepers' Association, but he had also acted for a considerable time as Secretary of the parent body at a time of great difficulty. The resolution was:—

'That the members of the B. B. K. A., assembled at the annual general meeting, have heard with the deepest regret of the early death of Mr. Fox Kenworthy, formerly Honorary Secretary of the Association, and wish to record their appreciation of the good work which, under difficult circumstances, he then did for it; and also wish to express their deep sympathy with Mrs. Kenworthy on the death of a son who was highly esteemed and respected by all.'

Mr. Hooker seconded the motion, and said he heartily endorsed Mr. Bligh's eulogy of the late gentleman, whom he knew both in his private and public capacity.

The President thought there was no need to go through the formality of putting the resolution to the meeting, because the expression of regret and sympathy contained therein must commend it to every one.

The Rev. G. Raynor moved:—

'(1) That in Rule 4 the words, "Subscribers of 1*l.* per annum and life members alone shall be eligible for election as members of the Committee," be omitted, and in lieu thereof be added the words, "Subscribers of 10*s.* per annum, donors of prizes of 1*l.* in the preceding year, and life members alone, be eligible for election as members of the

Committee." (2) That in Rule 5, the words "but not" be omitted, and in lieu thereof be added the words "and also."'

He entered into a retrospective view of the subject, and recounted the proceedings which took place at the previous annual general meeting in reference to the motion of Mr. Stewart, which was lost on being put to the vote. He opposed Mr. Stewart's proposition on that occasion because it was introduced at the fag end of the meeting, when very few members remained to discuss the question. There was now a good opportunity of considering the matter, and he would like to know the sense of the meeting thereon. Mr. Cowan was fully in accord with the motion, but earnestly hoped the qualification would not be reduced below 10*s*.

The Rev. F. G. Jenyns seconded the resolution.

Captain Bush opposed the reduction of the qualification. He said that nearly all the members of the Committee lived some distance in the country, perhaps twenty to fifty miles; and surely, if they could afford to pay the expense of travelling to and from London to attend meetings, they could afford to pay 1*l*. annually to the Association. The resolution was a mistake, because members desirous of being put on the Committee would be willing to raise their subscriptions to the required amount; and if they could not do so, probably they were not in a position to spare the requisite time to attend meetings. Besides, the Association would most likely suffer a pecuniary loss if the resolution were carried, and he did not think it would be better served.

Mr. J. Eastty supported the resolution, saying that there were bee-keepers in London who would probably be willing to serve on the Committee, but who could not afford to pay 1*l*. annually. Bees were successfully kept in South Kensington, and he himself had raised 18 lbs. of honey in Bermondsey.

Mr. Bunbury said the reasons which held good in reducing the qualification to 10*s*. were equally in favour of a reduction to 5*s*., and he moved as an amendment that a 5*s*. annual payment entitle the subscriber to serve on the Committee.

Mr. Meggy seconded the amendment, and said that he believed the success of the Association depended on the width of its basis.

Mr. Sambels spoke in favour of the amendment, and pointed out that, under the present rules the Committee, by uniting amongst themselves, could return any member they chose, owing to the plurality of their votes.

Mr. Baldwin hoped that in no case was the amount of subscription paid to the Association governed by a desire for plurality of votes.

The Rev. F. G. Jenyns explained that the united strength of the Committee's polling power only amounted to sixty votes.

Mr. Athawes supported the amendment, and objected to plurality of voting.

The Rev. G. Raynor disputed the cogency of Captain Bush's arguments. He thought, as a tentative measure, 10*s*. was low enough, because every person who had the well-being of the Association at heart would be prepared to pay that small amount, especially as it constituted the qualification necessary to serve on the Committee. He was of opinion that it would be better to pass the resolution, and see how it worked for a year or two.

Mr. Horton Ellis having seconded the amendment, in the place of Mr. Meggy, who was ruled out of order, it was put to the vote, and negatived by 14 to 7. The original motion was then carried by a majority of 10: 15 for, and 5 against.

The Hon. and Rev. Henry Bligh moved:—

'That in Rule 8 the words "from the unsuccessful Candidates, according to the priority of votes obtained at the Election," be omitted, and in lieu thereof be added the words, "by the Acting Committee."'

The Rev. F. S. Selater seconded the motion.

The Rev. G. Raynor suggested that the substituted words should be, 'from those members who are eligible and willing to serve.'

A long discussion ensued in which the President, Mr. Sambels, Mr. Lyon, the Hon. and Rev. Henry Bligh, the Rev. J. L. Seager, and Mr. Blow took part, the mover undertaking to withdraw his motion. This course being objected to, a division was taken, when a majority of 12 were in favour of the withdrawal—18 for, and 6 against.

The Rev. Dr. Bartrum moved:

'That the following words be added to Rule 8: "Every member willing to serve on the Committee, and who has not served during the previous year, must be nominated by one or two members of the Association. The name or names of the person or persons so nominating, together with the name of the nominee, shall be stated on the voting paper. Every member desirous of nominating a member of the Committee shall have a paper sent him for that purpose, on applying to the Secretary for the same, the written consent of the nominee to be forwarded to the Secretary with the nomination paper."'

He thought the present system of electing members of the Committee was unsatisfactory, and different to that carried out by other institutions. In the case of the British Dairy Farmers' Association, with which he was acquainted, the practice he had endeavoured to embody in the resolution was in force, and had acted very well. It seemed to him that old and tried friends of the cause like Mr. Cowan and Mr. Raynor ought not to be put to the trouble every year of finding a nominator. Those who had done good work in the past should be freed from such obligation. However, that was a question for the meeting to decide.

Mr. Baldwin suggested that the nomination form be bound up with the rules.

Mr. Sambels seconded the resolution.

Mr. Haviland thought the old members of the Committee would find no trouble in obtaining nominations.

Mr. Athawes moved as an amendment that the words 'who has not served during the previous year' and 'one or,' be omitted.

Mr. Hooker seconded, and Mr. Blow supported the amendment.

The Rev. Dr. Bartrum consented to the omission of the words 'one or.'

The Rev. G. Raynor and the Rev. F. G. Jenyns agreed with Dr. Bartrum in thinking that old members of the Committee ought to be exempted from the rule compelling annual nominations.

The amendment having been put to the meeting, was carried by a majority of 3—14 in favour and 11 against. It was then submitted as a substantive motion in the following form, and carried unanimously:—

'That the following words be added to Rule 8: "Every member willing to serve on the Committee must be nominated by two members of the Association. The names of the persons so nominating, together with the name of the nominee, shall be stated on the voting paper. Every member desirous of nominating a member of the Committee, shall have a paper sent him for that purpose, on applying to the Secretary for the same, the written consent of the nominee to be forwarded to the Secretary with the nomination paper."'

The Rev. W. E. Burkitt moved:—

'That in framing Schedules, special care should be used to make all Rules *definite*, and that they should be *strictly enforced;* also that it should be the duty of the Committee to make sure that the Judges shall make themselves acquainted with the Schedule before commencing their duties.'

Mr. Walker seconded the motion.

The Rev. F. T. Scott objected to that part of the resolution which saddled the committee with the duty of making sure that the judges studied the Schedule before commencing their duties.

The Rev. G. Raynor thought that meeting was

scarcely the proper tribunal before which to bring any improper action of the judges, to whom a certain amount of discretion must be allowed.

The Rev. Dr. Bartrum thought the motion implied a censure on those gentlemen who, at enormous trouble and personal inconvenience, had undertaken an onerous task. He hoped Mr. Burkitt would be satisfied with the protest he had made without pressing the motion to a division.

The Rev. J. L. Seager moved:—

'That the Committee be requested to draw up a form of Rules for exhibition, with a view to establishing uniformity at all shows throughout the Counties; a recommendation being added that the shows should be advertised as being held under the B.B.K.A. Rules.'

He thought, possibly, that this would prove generally acceptable, as well as meet Mr. Burkitt's wishes.

The Rev. F. S. Sclater seconded, and Mr. Sambels supported the motion.

The Rev. W. E. Burkitt agreed to withdraw his resolution, and support Mr. Seager's.

After a few words from the President, Mr. Seager's motion was carried unanimously.

The Hon. and Rev. Henry Bligh moved a hearty vote of thanks to the Baroness Burdett-Coutts, for her kindness in being present, and for the admirable way in which she had presided over the meeting that day. He also wished to draw their attention specially to the Baroness's goodness i relation to the medal. It had been debated by the Committee what form the medals commemorative of the South Kensington Exhibition should take, and ultimately application was made for leave to give the Colonial Exhibition Medal to all those who had exhibited at the Honey Show. This, however, it was found would involve a very large cost—quite beyond the means at the disposal of the Committee. At this juncture the President kindly came forward, and generously offered to defray the whole expense. He was quite sure they would all thoroughly appreciate such kindness, and tender her their most heartfelt thanks.

The resolution having been carried by acclamation, the President briefly expressed her acknowledgments for the cordial vote of thanks passed to her. It had afforded her the greatest pleasure to assist the Committee in regard to the medals. She thought the proceedings at the South Kensington show marked a distinct step in advance of the former position of the B.B.K.A. The holding of the British Honey Exhibition last year in the Conservatory at Kensington was due to a very kindly act on the part of the Prince of Wales, which was not accorded to any other industry. She knew that the show was admired very much, and she thought that the Prince had given a substantial proof of his appreciation of the movement by permitting the die which was used for the Colonial Exhibition to be placed at the disposal of the Committee. It was to be hoped that the medals would give pleasure to all the fortunate recipients of them. Since they last met, she had been asked to become President of the Middlesex Bee-Keepers' Association, and had complied with such request. Her ladyship concluded by expressing the pleasure with which she found herself amongst those who were devoted to the interests of the Association.

Great Tit Killed by Bees.—The great tit (Parus major) is a well-known enemy to the bee-keeper. First he comes to pick up the dead bees thrown out during the winter, and when these are exhausted he pecks at the mouths of the hives, and when a bee comes to the door to see what is the matter he snaps it, and flies on to the top of the hive or some convenient post, perhaps, and there dresses his prey preparatory to eating it, generally commencing by biting off the tail end of the bee, with the sting attached; this he never eats, but leaves it on the top of the hive or post. I was once very much annoyed by a pair of these tits daily molesting a hive, and not only killing a number of bees, but keeping them in constant commotion at a time of year when they should have been at rest; so I set a small trap, used for catching mice, at the entrance of the hive, and in a very short time I saw one of the tits fly on to it and get caught by the leg, when immediately a number of bees rushed out and stung him round the beak and eyes, and in exactly four minutes he was dead. I ought to say that I should have put him out of pain at once only the bees were roused by finding they had got their enemy in their power, and had I interfered to do so I should have got well stung, so I ran to the bee-shed for my veil, but when I returned the tit was just dying. I do not think I have molested one of these birds since, the whole family are so useful and interesting; I always encourage them in the garden. During the present hard weather the great tit daily pays visits to the bee-hives. F. Boyes (Beverley).—*Field.*

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Upper St. Martin's Lane, London, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. Huckle, *King's Langley, Herts (see 2nd page of Advertisements).*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

OUR HONEY IMPORTS.

The value of honey imported into the United Kingdom during the month of December, 1886, amounted to 1639*l.*

We are now in possession of the full returns for the past year, which are as follows:—

	£
January	424
February	451
March	2,722
April	1,113
May	1,541
June	2,900
July	6,505
August	1,255
September	2,812
October	1,257
November	2,527
December	1,639
Total for the year	£25,146

Comparing this total with the figures for which we have authentic data, we find that the total imports were as follows:—

1883	1884	1885	1886
33,778*l.*	62,357*l.*	61,344*l.*	25,146*l.*

It should, however, be remembered that the figures for 1883-5 are approximate only, the order from the Board of Trade to tabulate *honey* only dating from January, 1886. These latter, moreover, do not include the vast quantity of honey sent through Colonial Governments to the Indian and Colonial Exhibition. Honey will be included for the first time in the Annual Returns of Imports and Exports to be shortly published; and although we may expect the total to appear insignificant beside the immense sums paid annually for eggs, butter, &c. &c., the item will unquestionably be of considerable interest to the public at large, besides awakening bee-keepers to the fact that we are still unable to entirely supply the home consumption. As some time may, however, elapse before these 'Annual Returns' are officially published, it has seemed to me better not to await them, but to send them to the *Bee Journal* made up as in former years.—E. H. Bellairs, *Feb.* 18.

SIMMINS' 'UNION' OR 'UNIVERSAL' HIVE.

[830.] This hive has had three years of careful consideration, and was in the first instance developed because I had found the 'Standard' frame (14 inches by 8½ inches) decidedly inferior to larger frames I had formerly used, either for the production of honey, or bees for sale. After various experiences, a frame 14 inches by 14 inches has been found the most appropriate, all things considered, as it enables a stock to build up more rapidly in early spring and gives greater security in winter, as the stores are arranged in the best possible position, in relation to the cluster.

As a single frame, the present 'standard' is too small; as a storifying frame it is too large; therefore a smaller extracting super is connected with the large hive, and which can be used both at the back and front of the 14 inch-by-14 inch frame, as well as on top.

The frames of this shallow hive (fig. 1) are 12 in. by 6 in. × ⅞; there are eight of them spaced rather more than the 1½ in. from centre to centre. By a simple metal key running throughout the length of the hive, the frames are all held securely in place, as the said key passes

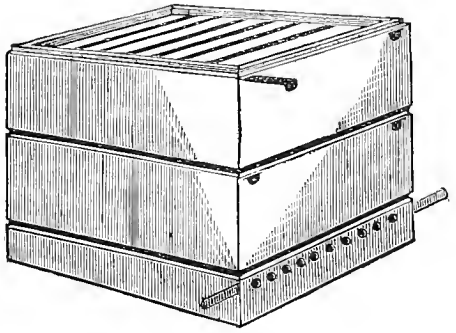


Fig. 1.

through a saw-cut in each end of the top bars. There are plain metal ends on the frames, which are grooved to correspond with saw cuts, so that the key is entirely hidden. The key is entirely hidden from the action of the bees, and as the frames hang clear of each other, the weather has no effect upon the wood as with close-end frames, or broad shoulders when used in a limited space.

A novel feature in connexion with the shallow chamber is that the usual bee-space is at the top instead of at the bottom, as of old. The reasons for this are (1), to give greater strength in the margin above saw-cut in hive side; (2), to receive pliable honey board (Fig. 2 or 3) across and

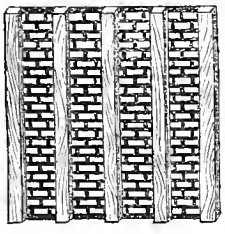


Fig. 2.

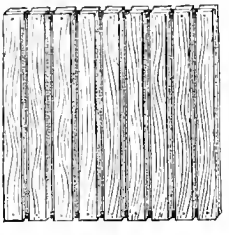


Fig. 3.

close on the frames as constantly recommended by us as the only means of totally excluding brace combs. Of course this implies that the extracting super can also be used independently of the large hive, similar to the 'Stewarton,' and with but a slight alteration in the position of the saw-cut, Heddon's half bee-space can be provided for those who desire to try inversion. At the same time the hive, as presented, can be used either way up, though I do not claim that any advantage is to be gained by inverting brood combs during the honey season. When used by itself the small hive has a sunk floor-board which acts as a permanent feeder, when inverted.

When either extracting or comb supers are used on end against the large frames (Figs. 4 and 5) the ⅜-in. space is placed next the latter. If on top, the same can also be done, though my own practice is to keep such the right

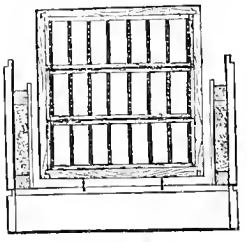


Fig. 4.

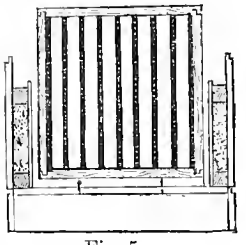


Fig. 5.

way up with the bars across those of the lower frames, close on to them; this also excludes brace combs when working for extracted honey, and when one has once tried the plan, he will never again submit to a clear bee-space immediately above the brood frames. It is there alone that comb attachments are liable to be built, but any space allowed between further super additions are not subject to this annoyance. In following out this plan of working for the past six years I have not had a single piece of comb attached to our sections, as often is the case on the underside of sections worked with the clear space under.

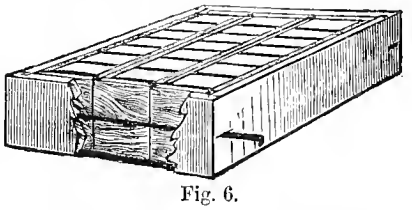


Fig. 6.

The comb super (Fig. 6) is also 14 in. by 14 in., containing three skeleton folding frames (Fig. 7), enabling each set of seven 4¼ in. by 4¼ in. sections to be inverted separately at will when full sheets of foundation are not used. I, however, prefer to fill the section with foundation, which gives a comb more perfect than a starter only, followed by inversion. The sections are securely keyed in position that the crate may be used on end with the large frames and also to aid in 'throwing' out the bees without

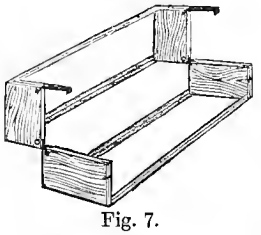


Fig. 7.

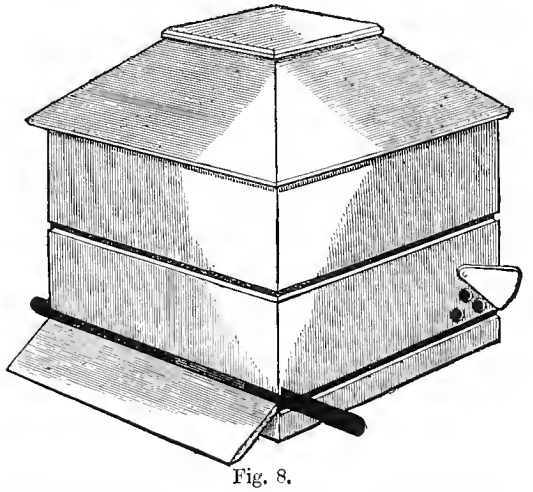


Fig. 8.

handling each section separately, though if supers be removed during the middle of the day a little smoke

will generally clear out most of the bees then at home.

The large hive is (Figs. 8 and 9 A) 19 in. by 19 in. outside, and is arranged to take either the 17 in. or 15½ in. top bars of the Standard frame, as in AB. Without any alteration it also takes our large frames (Fig. 10), which have their 'lugs' placed down the side on the same level as those of a standard frame: thus they stand 5½ in. higher, but to economise heat above the cluster and also to ensure that they hang 'true' it has been necessary to make these frames close-ended above the level of the side walls upon which they rest. The hive is double-walled, and packed with cork-dust on two sides. For my own use I retain the same dimensions, but at the front (south) wall have no space between the double lining (Fig. 9 D); and as the hive and floor are square the entrance can be placed in any position in relation to the frames. This floor is also invertible and a permanent feeder, with circular flight holes. I prefer this to any other arrangement but can allow the sliding entrance as generally used if desired.

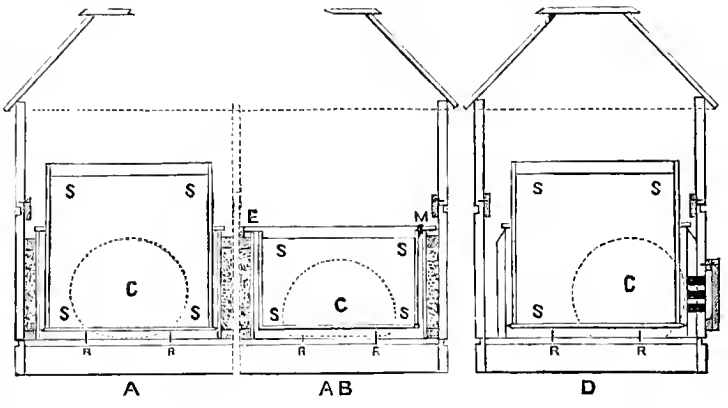


Fig. 9.

The large frames (Fig. 10) are set at 1⅜ in. from centre to centre as we have found this the best for a fixed distance with a frame of this size, because in winter the cluster can be compact without spreading the combs, and the large surface of comb admits of sufficient stores being placed within easy reach of the same; in summer it presents the same advantage of contraction that I have practised with various frames for the past ten years. Hence it is shown that few manipulations are necessary, and, when handled, one frame stands as two of the 'Standard' size.

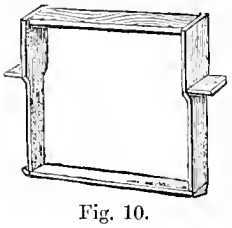


Fig. 10.

The extracting super, with its frames keyed in position, was designed in the first instance to accommodate a new mode of extracting; the fixed combs, also enabling those bees to be 'thrown' out which smoking fails to drive down. No alteration is made in the distance from centre to centre of the shallow frames, when the same are used on a separate stand as a brood-chamber as well, as this arrangement permits of plenty of stores for winter, and more room for the bees to cluster between, as in this case the bee-nest is spread out horizontally instead of in an upward direction as in the deep frame. Thus, to suit their own particular formation, the deep and shallow chambers are each arranged to meet all necessary conditions without further manipulations.

Where the large frames are not desired the outer case will do for giving protection to the small hive, or the latter can stand all the year round without other protection.

There are no plinths used anywhere about the hives, but the upper edge of each chamber has a ¼-inch rabbet cut out all round the outside, thus forming a gutter to carry off any moisture and making it impossible for the same to penetrate into the hive.

The small hive has no dummies, but the larger one has one dry-sugar feeding dummy, and one plain dummy supplied with it; or two original dry-feeding dummies if Standard frames only are wanted.

All parts of the hives are tongued and grooved, so as to come correct to guage, that any one may buy in the flat and put them together at home.

I have been fully aware that the greatest obstacle in the way of introducing another frame would have been the loss of uniformity, seeing that the 'Standard' is so generally used, simply because it is the 'Standard,' and for that reason has been recommended by many, myself among the number, before I was really aware that I was using it at a serious loss. I have accordingly ensured that the present hive will, without alteration, take in the same body (14½ in. space) my new large frame, the 'Standard' frame with either 17 in. or 15½ in. top bar, the crate of twenty-one sections as one large frame, the shallow chamber of eight frames as a combined frame; and, moreover, that the large frames may be used in any existing Standard hive, the latter also serving as a cover or shelter to the shallow hive, when used independently. Hence the hive is very appropriately called the 'Union,' or 'Universal.'—S. Simmins.

A DISCOURAGED ONE.

[831.] I have received (on Saturday) my first discouragement in bee-keeping, and in the midst of my trouble I turn to you, in the hope that I may receive *some* small crumb of comfort. I may say that I had anticipated your appeal to the teachers of schools to take up the 'hobby,' and this gave me the more satisfaction to see the appeal. I had always a burning desire to be the possessor of at least one or two hives, but up till last back-end I was in the dark how to procure a hive.

Accident, however, threw an opportunity in my way; a friend, who had just made a good start, having to dispose of his stock by order of his employer. To make a long story short, I bought a swarm which had come away in May, and which my friend had hived in a box hive (not frame). My friend is one of the old school, on the verge of conversion, but a most enthusiastic bee-keeper withal. I lend him my *Journals* each week, and they do a great amount of good, as there are a few of the old school here. Of course I cannot presume to educate them yet. To continue my story:—The hive is a box, with a hole in the crown for supering, and is enclosed in a substantial case, which I have packed with chaff, and the whole has been kept 'dry as a bone.' During the long spell of snow my friend paid me a visit, with the sorrowful news that a neighbour had lost his stock (a weak one) through the ravages of mice, which had 'cleared the shop' of every bee. He thought it advisable to have a peep at *my* stock, to see how they appeared to be stocked. Of course, I need not say that he could not *see* much by taking off the bit of board which covered the hole, but he advised me to give them some syrup; and being only too thankful for advice, I gave about a pint, when I saw a warning against feeding with syrup in the *Journal*, and I at once discontinued. It occurred to me at the time that surely a swarm coming so early as May ought to be sufficiently stored,

even in a poor honey season, when they had been allowed to keep all their takings. I hope I have shown wisdom in deciding to let them alone till late next month, *i.e.*, if I have any left. As you now know the particulars with respect to the constitution of my apiary (?), I will now tell my tale of woe. During the prevalence of the late cold and boisterous winds, I have kept the sliding doors closed up to about one bee-space. On Saturday last we had a grand spell of sunshine, though the wind was very cold. I left home for the day, leaving things as usual, and on Sunday, on taking a walk round my garden, I was staggered to see about a score dead bees lying in front of the hive. But oh, worse still. I opened the doors, and to my great horror I found the entrance crowded with dead or dying pets. The thought of it makes me ill when I recall it. I should think there were about one hundred dead, or dying. I cleared the entrance, of course, but I shudder to think of what may be the state inside. Can you account for it? What *am* I to do? I look about for some to advise me, but alas! I will await my next issue of the *Journal* with impatience. Perhaps, if I stop here, you will permit me to write to you again. I wish that box-hive far enough. Please give me a good dose of advice, but pray don't call me knobstick, and tell me to go out of the business.—DISCOURAGED, *Alderley, Crewe.*

[The syrup you gave during the frost would not have much effect upon the bees until warmer weather came. 'The grand spell of sunshine' aroused the semi-dormant bees, and, partaking freely of the syrup, excitement followed, when, rushing to the narrow entrance, a block took place, and many were suffocated. Your discovery of the state of things on the following day was fortunate, and, in all probability, saved the colony. Raise the hive from the floor-board about an inch, by *gently* inserting wedges on four sides, when you can clear out the dead bees and refuse by inserting a piece of stout wire, with hook at end. If you find *piles* of dead on the board, turn up the hive and ascertain whether the whole have perished. If you find few dead– say a hundred or two—clear them out, lower the hive gently to the board, keep the entrance at full summer width, not less than six inches, and give a cake of warm candy at the feed-hole. We do not think, however, that you will find the bees short of food, but you ought to be able to discover this by *lifting* the hive, and if you turn it up you may ascertain, to a certainty, their state.—ED.]

EXPERIENCE OF A NOVICE.

[832.] Being a novice at bee-keeping, I should like to be allowed to give you my experience during the last two years, so that I may have the assistance of your valuable paper ere another season comes upon us.

I must begin by stating that I live in a neighbourhood not particularly well suited to bees, being near the sea, where high winds are prevalent, and the fields around chiefly occupied by broccoli and potatoes. Within a a distance, however, of from two or three miles there is a large quantity of both heather and gorse. Two years ago I commenced bee-keeping with three stocks, and did remarkably well, taking no less than 70 lbs. of honey from one hive and forty-eight sections from another. This determined me to increase my stocks, which I did in the autumn by means of driven bees. I opened the season last year with twelve stocks, expecting, before the summer ended, to take a large amount of surplus honey. Alas! I was doomed to disappointment. Up to the third week in June the bees did wonders. My hives were literally crammed with bees, all my hives were either doubled or had two tiers of sections. One hive I doubled and in addition added three crates of 21-lb. sections, and the whole were taken possession of by the bees. All seemed to be going on swimmingly until the end of June, when the honey flow almost ceased for the season. I took a little honey from a few of the hives, but in August, when I came to examine the brood-nests, I found they were all empty, and the greater number of the sections were unfinished. I had to give each hive in the autumn 16 lbs. of syrup, and I found by October that hives which had contained enough bees to cover twenty frames only contained sufficient to cover six or seven. I successfully introduced, late in the season, a Carniolan and a Ligurian queen, by following Mr. Simmins' directions.

My stocks are at present all alive though not strong, covering about four frames on an average. I may say that I used no excluder zinc, so that the queens (all young ones) were able to roam about at leisure. I shall be very glad if any of your correspondents can tell me wherein I erred, and how I should act for the future.

My own idea is that the queens raised too large a number of bees, and that towards the end of the season, the honey harvest failing, this large number of bees exhausted the gathered stores, and then numbers of them perished prematurely, from having to range long distances in search of the sweets of life. Had I used excluder zinc, and confined the queen to so many frames, say ten or twelve, I believe the results would have been more satisfactory. I shall be grateful for any help your kind readers may be able to give me.—INQUIRER.

[There does not seem to have been any honey in your district after June, consequently when the flow ceased breeding also ceased, and we think you erred in not at this time removing your sections. If your colonies did not develope to their full strength before the honey flow commenced they could not store any, but in your case there does not seem to have been much honey to store when they had become strong. Last season was a bad one in most districts, and the one before an exceptionally good one. As brood-rearing with you ceased so soon it is not surprising that your colonies dwindled down by October. Breeding should have been encouraged by stimulative feeding, so as to have had a large number of bees to commence the winter with. The old bees died off naturally, and, unless breeding had been kept up, restricting the queen to a certain number of frames would not have assisted you.—ED.]

A VOICE FROM SUSSEX.

[833.] We are very, very sorry to inform you that the queen of our hive has been missing for a very long time, and we cannot tell what has become of her majesty. We are rather afraid that she has perished with her hive, for she had nothing but drones there. Could her parents tell us what we are to do, and where we might get another queen? Or, if the parents have another young princess to spare, we would gladly accept her as our queen, providing she will stay at home and attend to the duties of the hive. We do not mind what breed, or what colour, or what country, she may come from, provided she does not lay too many drones' eggs. Tell her there is plenty of good honey in Sussex, and plenty of good working bees, but no store-room. We will start the new hive with worker-comb foundation.—A FOREST BEE, *Sussex.*

A VOICE FROM CUMBERLAND.

[834.] I am rather inclined to think that the Cumberland Bee-keepers' Association is in a somewhat similar position to that of the Yorkshire. Why such slow progress has been made I am unable to say, unless it is that those who should have been the principal workers are satisfied with the little knowledge they have got, and do not care to let it be known amongst their more unfortunate neighbours. I wish to ask the chief actors, or rather those who should have taken the more active part, why they did not continue and keep it on the move when there was every prospect of the Association doing

so well. At the commencement—that is, in 1883—some of those who took an interest in it did exert themselves a little in getting the Association into a workable form, and the number of members in a very short time was upwards of seventy. After the autumn of 1884 nothing more was done, or very little. Since then all has been darkness, and whether the Association is really dead or alive I know not; but there need be no wonder about it getting into such a low state when we have not a doctor in the county who is willing to come forward and give his advice, and try to stop the course of the disease. I have never once heard of a resident bee-keeper in Cumberland giving a lecture on bee-keeping, except a cottage bee-keeper at Keswick; and I believe this is the only place where the annual meetings have been kept up. It appears that we have not got the right sort of workers in Cumberland who are willing to give a helping hand now that it is so much needed. We have in this county a very large number of bee-keepers, and most of these keep their bees on the old barbarous system. I think by this time, if those connected with the Association had acted up to the spirit in which it was formed, some scores of those might have been induced to keep their bees on the humane principle. We have had neither lectures nor shows, except one tour through the neighbourhood by Mr. White and another by Mr. Sissons. After these gentlemen had livened things up a little I looked for some of our own members to follow their example. I see in the list of members the names of either seven or eight clergymen. Surely one might think that out of this number some of those reverend gentlemen would have taken a little more interest in it, and not allowed it to be neglected as it has been. We want a Raynor or a Bligh amongst us. If this had been the case Cumberland would have been in a more flourishing state than it is at the present time. I hope that another attempt will shortly be made to revive the Association, and not let it be said that a cottage bee-keeper is the only one that is anxious for the future prosperity of the Cumberland Bee-keepers' Association.—WORKER BEE.

Replies to Queries.

**** *In their answers, Correspondents are respectfully requested to mention in each instance the number and the title of the query asked.*

[818.]—In reply to 'R. E. Lloyd,' I have had some experience in varnishes, and I do not think there is any varnish or polish made (we must remember they are only gums in solution) that will withstand the salts or chemicals held in solution in water. To prove my assertion, let any one try the effect of a good strong solution of soda in water on any varnish or polish, be it on wood or your hands, and they will soon see how rapidly the gums are decomposed; but they must not neutralise the soda by the addition of soap. I should recommend him to treat his vessel as I am doing Clark's patent feeder. I make them hot, and pour some melted beeswax in. It will not break off, aud is just the thing.—W. T. GREEN.

[826.] CRATES OF THIRTY-FIVE SECTIONS. (WEST SOMERSET.)—Nothing is gained by having so many sections in one rack; the weight of rack is increased, this being a great consideration. A portion of the rack would have to be enclosed underneath, as it would more than cover the right number of frames for a brood-nest, hence there would be a great loss of heat. Work your bees on the storifying principle, not laterally, you will not be then far wrong.—W. B. WEBSTER.

[827.] MOVEABLE FRAME-HIVE. (DOUGLAS.)—To Major Munn is ascribed the making of the first *moveable* frame-hive, this being considered a failure, the date being 1841. Ten years after, Langstroth so improved on it as to make it practicable.—W. B. WEBSTER.

[827.] THE FRAME-HIVE.—The moveable comb frame hive was introduced and improved upon by Mr. Langstroth about 1852.—J. D. MCNALLY.

[827.] INVENTOR OF MOVEABLE FRAME HIVE. (DOUGLAS.)—Huber is credited as being inventor of moveable frame (top bar); but Langstroth improved it by adding the end rails and bottom bar; although it appears to have been in use as early as 1675-6 by Geo. Wealer, as one author says, and probably even then an old invention.—EDWARD CLOWES.

[828.] GLASS HIVE.—About the first mention we have of glass hives were those used by Mr. Maraldi about the year 1777 for the purpose of watching how bees paired. Many conjectures regarding the pairing of bees have been published; one of the most ingenious appears to have been suggested by Aristotle, and revived by Maraldi, the celebrated inventor of glass hives.—JOHN D. MCNALLY.

[828.] GLASS HIVE. (DOUGLAS.)—Such a thing I have never heard of; if you mean an observatory hive, that is, a hive having glass inserted in portions of it for the purposes of observation, the first record that I can find is Huber.—W. B. WEBSTER.

[829.] POISONOUS HONEY. (DOUGLAS.)—According to my experiences, poisonous honey produced in England is a myth; I never trouble my head about such a thing when eating any description of English honey. Your second query has puzzled the greatest scientists, and cannot be satisfactorily answered. How is it that the goat, for instance, will eat leaves and thrive on them, whereas a horse, doing the same, would be killed? To bring it nearer to the subject, How is it that a very few people cannot eat honey, as it produces nausea? It doesn't with me.—W. B. WEBSTER.

Queries.

Queries and Answers are inserted free of charge to Correspondents When more than one query is sent, each should be on a separate piece of paper.

Our readers will greatly oblige us by answering, as far as their knowledge and observations permit, the Correspondents who seek assistance. Answers should always bear the number and title placed against the query replied to. Any queries unanswered in this way will be answered by the Editor and others.

[835.] *Artificial Swarming.*—Who is reputed to be the first that practised artificial swarming?—EDWARD CLOWES.

[836.] *Quieting Bees.*—Who was the first that found out a method of quieting bees through the influence of smoke?—EDWARD CLOWES.

NOTICES TO CORRESPONDENTS & INQUIRERS.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

E. SHOTTER.—*Fowls.*—Fowls rerely attack bees. Ours have the range of the apiary, and we have never seen them attack the bees. The most they do is to pick up an occasional drone when it comes across their path.

COTTAGER.—*Extracting.*—It is better not to extract from combs of the year, at least before the autumn, by which time they have generally become tough enough for extracting. The American flat-bottomed wired foundation is the best for the purpose. If this is used there will be no danger of breakage towards autumn, with ordinary care. We never use excluder zinc. If brood is deposited in the upper storeys it is easy to remove it to the brood-nest below, and to remove the outer combs of honey from the lower to the upper chambers. Excluder zinc disheartens the bees, and hinders free and hearty work. At least this is our experience, but it has its advocates, which are more numerous in America than in England. Wiring the *frames*, with a view to extracting, is better even than wired foundation. If your colonies are strong, when the honey season arrives, you may safely insert two or three frames of foundation, in each of your colonies, close to the brood-nest, and remove the frames displaced by these—provided they are free from

brood—to the upper chambers. These frames of foundation will be utilised for brood, since queens prefer, above all things, to deposit eggs in newly-built worker comb.

A. W.—1. The sugar forwarded is not suitable for dry sugar feeding; Porto Rico is the best. 2. Enamel cloth, like sample, will answer your purpose. 3. For syrup-making, Mr. Simmins uses Dutch crushed sugar, which, we note, he recommends in his advertisement to his customers; it answers its purpose well, but we prefer Duncan's Pearl or crystallized sugar.

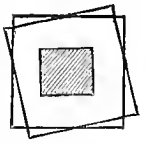
Ignoramus.—1. *Age of Queens.*—The first swarm, which you had in June, 1885, would have a queen of 1884. When that stock, No. 1, swarmed in June, 1886, the queen went with the swarm, No. 2; the second swarm had a young queen, No. 3; thus No. 1 and No. 3 have each a queen one year old, and No. 2 a queen three years old (unless she had been superseded by the bees, which is sometimes the case). 2. *American Bee-keepers' Magazine* may be procured from Mr. Huckle, King's Langley, or from Messrs. Aspinwall & Treadwell, Barrington-on-Hudson, New York. 3. *Symington's Pea Flour.*—Yes, that will do very well for artificial pollen. 4. *Measurements of Hive.*—The only measurements which need be kept to are the width from side to side, 14½ in., and the depth from the edge of sides on which the frames rest to the floor-board, which must be 8½ in. The length of the hive is a matter of detail, and regulated according to the number of frames you intend to use. 20 in. for a single hive is a very convenient length. Refer to pp. 60 and 69, Vol. XIV. 5. *Queen-wasps.*—It is early to see these upon the wing. Carrying pollen would show that the stock carrying it in has commenced brood-raising.

J. C. I.—1. *Inverting Sections.*—The object in inverting sections is not so much getting them filled quickly as having them fixed to the bottom securely. Turning them on one side would only accomplish this in a partial degree. Before trying either plan read 'Amateur Expert's' note in a recent issue. The advantage of reversing is very doubtful. 2. *Wire-cloth Mesh.*—Wire-cloth of ¼-inch mesh is used by a few bee-keepers in America, and the inventor claims great results through the bees being able to form a solid cluster. This, however, like many other new ideas, requires proving before it can be recommended.

J. B. S.—*Bee Space between Bottom Bar and Floor-board.*—Let there be $\frac{5}{16}$ths of an inch only between the bottom bar of your frames and the floor-board of your hive, whether you use metal ends or not. This reply meets both your queries.

East Lothian.—*Transferring.*—We suggest that you should stimulate the bees in the skeps, and get swarms from them as early as possible, and transfer twenty-one days after swarming. For method of transferring consult *Modern Bee-keeping* or Cowan's *Beekeepers' Guide.*

A. F.—*Summer Shade for Hives.*—If the hives are single-walled it is very necessary that they be shaded in some way or other during the hot summer weather, otherwise the bees are likely to swarm. If the temperature rises rapidly above 95° swarming is induced, and this may be brought about if the hive is fully exposed to the sun, and its rays strike directly the thin walls of the hive. If the bees are not ready to swarm they spend a great deal of their time outside when they ought to be working inside. Double walls are a protection. We do not think you have quite understood the *outer cases* alluded to. The hive we use is not double-walled, but by means of the outer cases we make it so. The hive itself, which has no top or bottom, stands on the floor-board, and the outer cases surround it. In winter the space between the hive and outer casing is filled with chaff, which is removed in the summer, and allows a free circulation of air between the two, especially if the latter be wedged up to allow the air to enter at the bottom. The outer cases are made of four boards nine inches deep, and are exactly like the hive, or like a box without top or bottom. They are made of half-inch stuff, and have a plinth round the lower edge, so that when one is put on the top of the other they are kept in position. One can be placed above the other to any height, and the loose roof is then placed above them, just as is shown in the illustration on p. 12, which also shows the four hives placed one above the other surrounded by the four outer cases and covered by the sloping roof. With such hives there are too many bees to allow any snails to congregate; but bees do use the space between, more especially at night, when they do not find room inside the hive. In very hot weather we put the outer cases one on the top of the other in such a way that there is an outlet for the air between each. The sketch we give will illustrate our meaning. The shaded part represents the hive, and the outer lines the casings, as seen when looking down upon them from the top.



Trade Catalogues.—We have received Trade Catalogues from Messrs. G. Stothard, Welwyn, Herts; T. B. Blow, Welwyn; E. C. Walton, Muskham; Simmins, Brighton.

Show Announcements.

July 11-15.—Royal Agricultural Show at Newcastle-on-Tyne. Entries close May 12. J. Huckle, Kings Langley.

August 3-5.—Yorkshire Agricultural Society at York, Secretary, H. L. Rickards, Poole, near Leeds.

Business Directory.

HIVES AND OTHER APPLIANCES.

Abbott Bros., Southall, London.
Appleton, H. M., 256A Hotwell Road, Bristol.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
Burtt, E. J., Stroud Road, Gloucester.
Edey & Son, St. Neots.
Howard, J. H., Holme, Peterborough.
Hutchings, A. F., St. Mary Cray, Kent.
Meadham, M., Huntington, Hereford.
Meadows, W. P., Syston, Leicester.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
Stothard, G., Welwyn, Herts.
The British Bee-keepers' Stores, 23 Cornhill, E.C.
Walton, E. C., Muskham, Newark.
Wren & Son, 139 High Street, Lowestoft.

HONEY MERCHANTS.

Abbott Bros., Southall, London.
Baldwin, S. J., Bromley, Kent.
British Honey Co., Limited, 17 King William St., Strand.
Country Honey Supply, 23 Cornhill, E.C.
Howard, J. H., Holme, Peterborough.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
Walton, E. C., Muskham, Newark.

FOREIGN BEES AND QUEENS.

Abbott Bros., Southall, London.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
Benton, F., Munich, Germany.
Howard, J. H., Holme, Peterborough.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
Simmins, S., Rottingdean, near Brighton.
Walton, E. C., Muskham, Newark.

METAL ENDS.

Abbott Bros., Southall, London.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
Lyon, F., 94 Harleyford Road, London, S.E.
Meadows, W. P., Syston, Leicester.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
Walton, E. C., Muskham, Newark.

COMB FOUNDATION.

Abbott Bros., Southall, London.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
Howard, J. H., Holme, Peterborough.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
Stothard, G., Welwyn, Herts.

MANIPULATE WITHOUT SMOKE!

WEBSTER'S FUMIGATOR

Entirely supersedes the Smoker, both in Simplicity and Effectiveness. No 'going out.' No tainting or soiling of combs. Always ready for use without any preparation. Can be carried in the pocket.

With Bellows, 4s. 6d.; postage, 4½d.

Without Bellows, 3s.; postage, 3d.

Can be adjusted to any ordinary smoker bellows.

6 oz. Bottles of Agent—carbolic acid, oil of tar, and water, properly mixed—6d. each.

WEBSTER'S SWIVEL FRAME-LIFTER

WILL BE READY SHORTLY.

With this appliance, frames can be removed from hive, replaced and examined on both sides without inverting, with one hand, leaving the other free for manipulating, at the same time preventing soiling the hands with propolis.

W. B. WEBSTER,

SOLE MANUFACTURER AND INVENTOR,

WOKINGHAM, BERKS.

AWARDS FOR FUMIGATORS LAST SEASON.

1st Prize Silver Medal, Royal Counties' Agricultural Show.
Highest Award, Colonial and Indian Exhibition, London.
2nd Prize Bronze Medal, Colonial and Indian Exhibition, London.
2nd Prize Altrincham, Lancashire and Cheshire B. K. A.

LYON'S Patent METAL ENDS.

THE only perfect pattern. The metal being flush with the inside of the Hive side, CANNOT BE FIXED TO IT BY PROPOLIS. All the so-called Improvements CAN.

The Special Alloy used allows them to be LIGHT YET STRONG. One gross weighs 5¼ lbs.

Price for 1887 **5/6** per gross.

DR. PINE'S VEILS.

Prize Medal, 1879, for the best Bee Dress, The only Medal ever awarded to a Veil, **2/2** each, post free. Every genuine Veil bears the Registered Trade Mark.

DR. PINE'S LOTION.

The ONLY CURE for Stings, **1/8** per bottle, post free.

CHESHIRE CURE.

Guaranteed, with Directions, **1/2** per bottle, post free.

METHYL SALICYLATE, or 'APIFUGE.'

1 oz. bottle, post free, **1/8.**

HIVE MAKERS supplied with SPRINGS, GLASSES for Sections, PHENOL, METHYL SALICYLATE, in bulk, &c., &c., at lowest prices.

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SEND to A. F. HUTCHINGS for quotations of AMERICAN WHITE BASSWOOD ONE-PIECE SECTIONS of the finest manufacture and quality, 300,000 will shortly be on hand. Special terms for all Orders before March 25. Don't fail to get my prices before you Order elsewhere! Address, West Kent Steam Power Hive Works, St. Mary Cray, Kent.

THE WINDSOR BEE-KEEPER'S

Choice Selected Collection of

SEEDS OF FLOWERS

SOUGHT AFTER BY BEES. Free by post, 2/6.

SOLD BY (162)

JOHN SMITH, The Royal Nursery, Clewer, Windsor, Berks.

CHAPMAN HONEY PLANT.

I WILL send to any address 26 varieties of BEE-FLOWER SEEDS, including the Noted CHAPMAN HONEY PLANT, for 2*s.* post paid. GARDEN SEEDS.—I will send 21 packets of Garden Seeds to any address for 2*s.* 6*d.* post paid. BAR-FRAME HIVES with Straw bodies, the hive least affected by heat or cold. My Hives and Appliances are all forwarded carriage paid, and returnable if not approved on arrival. Please send your address on post-card, and I will send Descriptive and Priced Catalogue post free. Address JOHN MOORE, Seed Merchant, Market Place, and Prospect Farm, Warwick.

EARLY BEE FLOWERS.—Plant now.—Strong Plants of ARABIS and LIMNANTHES, 1/9 per 100, free. Address S. S. GOLDSMITH, Boxworth, St. Ives, Hunts.

Sectional view of New Patent Bee Feeder.

Simple, Safe, Clean!

Unrivalled for Summer Feeding. No excitement. No robbing.

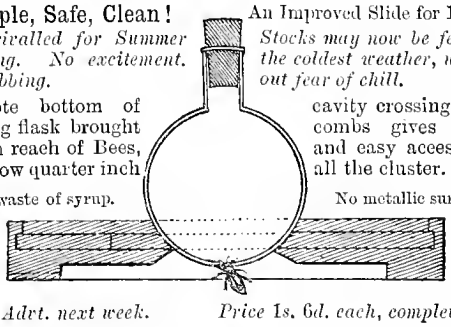
An Improved Slide for 1887.

Stocks may now be fed in the coldest weather, without fear of chill.

Note bottom of feeding flask brought within reach of Bees, also how quarter inch cavity crossing the combs gives safe and easy access to all the cluster.

No waste of syrup.

No metallic surface.



See Advt. next week. *Price* 1*s.* 6*d. each, complete.*

Send P.O.O. to Patentee, J. P. HOPKINS, Milverton, Somerset.

SUGAR.—Having had many enquiries from those who cannot obtain the right kind, we now offer Genuine PORTO RICO, on rail at Brighton, 21*s.* per cwt., 11*s.* 56-lbs., 5*s.* 9*d.* 28-lbs. DUTCH CRUSHED, best for Syrup, 22*s.* 6*d.* per cwt., 11*s.* 6*d.* 56-lbs., 6*s.* 28-lbs. Quantities of *not less* than 2 cwt. of Dutch Crushed, direct from London, at 19*s.* 6*d.* per cwt.; *not less* than 10 cwt. Porto Rico, at 18*s.* For Cash only with Order. No Samples sent, as we recommend only what we would use ourselves. Subject to fluctuations in Market.

Address: **Simmins' Factory, Brighton.** (161

SKEPS, FOUNDATION, &c.

1 lb. 2/- or 1/10.

Dealers and others apply for List (110 *Illustrations*),

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SCREW CAP JARS.—Fifty 2-gross Cases of new Straight Shape 1-lb. JARS to be Sold at a great reduction, together or separately. Address FREDK. PEARSON, Stockton Heath, Warrington.

FOR SALE.—OBSERVATORY and FRAME HIVES, STOCK FOUNDATION and FOUNDATION MACHINE, with SECTION CRATES and FRAMES, to be sold cheap. Apply to C. CUST, 3 Temple Terrace, Dorchester. A 2347

THE BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, St. Martin's Lane, W.C.'

[No. 245. VOL. XV.] MARCH 3, 1887. [PUBLISHED WEEKLY.]

Editorial, Notices, &c.

OUR WAX AND HONEY IMPORTS.

Having been enabled in our last issue, through the kindness of E. H. Bellairs, Esq., Hon. Sec. of the Hants and Isle of Wight Bee-keepers' Association, to give the returns of the value of honey imported into the United Kingdom during the past year, and as we are now, by the official publication of the 'Annual Statement of the Trade of the United Kingdom with Foreign Countries for 1885,' in possession of the amount and value of the imports of wax for that year, we are in a position to compare these data with those of the respective preceding years.

The subjoined tabular statement specifies the foreign countries and the British possessions from which wax is exported, with the amount and value of the same :—

	cwts.	£
Germany	10,749	29,054
France	1,244	6,088
Portugal	965	5,523
Italy	666	3,978
Morocco	964	5,287
China	778	2,354
Japan	6,115	12,883
United States of America ...	2,911	17,639
Chile	499	3,461
Brazil	5,605	17,886
Other Foreign Countries ...	1,432	4,126
Total from Foreign Countries	31,928	108,279
West African Settlements ...	291	1,737
British Possessions in South Africa	1,286	7,659
Mauritius	2,040	11,776
British East Indies	903	5,465
Hong Kong	525	1,770
Australasia	892	5,367
British West Indies	1,012	6,921
Other British Possessions ...	48	279
Total from British Possessions	6,997	40,974
Total ...	38,925	149,253

It will be seen from the above that the mean value of wax per cwt. is 3*l.* 16*s.* 8*d.*; in the previous year it was 3*l.* 14*s.* 10*d.* There has been a considerable increase in the amount received from the British possessions over the previous years. Wax is of various kinds—vegetable, mineral, and insect—and from the preceding statement of the value, we are able to deduce the nature, of the wax imported. That from Japan is 2*l.* 2*s.* 1*d.* per cwt.; from Germany, 2*l.* 14*s.*; from China, 3*l.* 0*s.* 9*d.*; while that from Italy fetched 5*l.* 19*s.* 5*d.*; from the United States, 6*l.* 1*s.* 2*d.*; and that from the British possessions averaged 5*l.* 17*s.* 3*d.* We note that Holland, which figured as a contributor in the previous year, is absent from the list this year; while China and South Africa, which were absent the previous year, appear this year as large importers.

The following statement gives the value and amount of the wax exported from the United Kingdom to the respective countries :—

	cwts.	£
Russia	1,342	4,825
Germany	3,561	13,827
France	1,409	5,044
Other Foreign Countries ...	3,573	11,918
British Possessions	443	1,092
	10,328	36,706

Comparing the quantities of wax imported during the two preceding years, the results are,—

1883.	1884.	1885.
28,192 cwt.	28,258 cwt.	38,925 cwt.

The value of the above for the same years is,—

97,142*l.*	105,813*l.*	149,253*l.*

While the amount of the wax exported for the same years is,—

12,504 cwt.	10,378 cwt.	10,328 cwt.

And the value thereof,—

41,339*l.*	36,437*l.*	36,706*l.*

From a comparison of the above we see that there was a considerable increase in the import of wax during the year 1885 over that in 1884, while that re-exported during the same years has almost remained stationary. It is evident that if it would pay bee-keepers to direct their attention to the production of wax together with that of honey,—and we see that many practical bee-keepers are so doing,—there would be a market for it in this country. The amount of wax used in the production of comb-foundation by manufacturers alone is very large, and an attempt should be made by bee-keepers to raise a larger quantity in proportion to its requirements. The British Honey Company have done much in increasing the pro-

duction of honey: could they not also find it to their interest to stimulate the expansion of that of wax?

In our last number Mr. Bellairs gave us, so far as he was able, the value of the imports of honey for last year and that of the three preceding years. The values for 1884, 1885, and 1886 are,—

1884.	1885.	1886.
62,357*l.*	61,344*l.*	25,146*l.*

Those of 1884 and 1885 are approximate only, and those of 1886 do not include the honey sent through Colonial Governments to the Indian and Colonial Exhibition.

For some years past we have been indebted to S. Seldon, Esq., of the Statistical Office, Customs, and to Mr. Bellairs, for the information that has appeared so regularly in our pages of the value of the monthly imports of honey into the United Kingdom; and we are sure that bee-keepers are fully sensible of their indebtedness to those gentlemen for the trouble they have so kindly taken. From January, 1886, the imports and exports of honey will be found in the 'Annual Statement of Trade with Foreign Countries.' As, however, this Statement does not usually appear before the month of September, we are pleased to be assured by Mr. Bellairs that he will continue his good offices by forwarding month by month the accounts as he has done in previous years.

USEFUL HINTS.

Weather.—During the last fortnight the weather has continued cold, cheerless, and changeable, and our bees have been entirely confined to their hives, with the exception of one fine day which enabled them to fly freely and to display their numbers. 'All things come to those who wait,' and '*Post nubila Phœbus*' is a true proverb in more senses than one. Soon, therefore, shall we realise that—

> . . . 'Day by day
> New pollen on the lily petal grows,
> And still more labyrinthine buds the rose.'

Country Life.—After our experience of the dense London fog up to noon on the 17th ult., the day after our annual meeting, when gas and electric lights failed to dispel the gloom, and, unable to decipher the figures on the dial-plates, we were compelled to resort to the nearest policeman to learn the time, we congratulated ourselves in the words of our favourite poet,—

> '*O fortunatos nimium, sua si bona norint,*
> *Agricolas!*'

And choked almost to suffocation, pitying the gasping Londoners while contrasting their state of existence with that of our own happy country fraternity, we exclaimed in fullness of heart,—

> 'We possess the flowers and trees,
> Modern hives and golden bees;
> Fruit and nectar, both divine,
> We shall reap at harvest time.'

And, finding on reaching our quiet country home, with its hive-scattered lawns and shrubberies, that the day had been one of brilliant sunshine, we were more than ever impressed with the truth of the old saying, 'God made the country, man made the town.'

Enamel cloth and Hive-covering.—Although we have repeatedly explained the way in which we use the enamel cloth as a covering for hives, we are constantly asked for information thereon. Indeed the reiteration we are compelled to use in this, *our department*—reiteration of methods of management, facts, advice, &c., &c., many of which have been ever present to our minds for well-nigh half a century, and have repeatedly appeared in the columns of our *Journal*, is one of our most irksome tasks; and yet, with the knowledge that all this repetition is absolutely necessary, we must not shirk a duty so obvious, asking only that our readers will exercise a little patience and forbearance towards our wanderings into 'devious paths and pastures new.' The enamel cloth we always use is American, and we place the enamelled or glazed side downwards upon the frames. These American cloths are sold by most English dealers in two sizes to suit small and large hives, and are neatly bound on two sides with strips of tin. In making winter preparations we place several thicknesses of felt, carpet, chaff-cushions, or both, upon the enamel cloth, and over all a weighted crown-board. These prevent all escape of heat, and we have wintered upwards of fifty colonies during the recent severe winter, and brought them safely through—thus far—without a single loss. The interiors of the hives are perfectly dry, combs and all, and the bees in perfect health, without a symptom of dysentery. Our apiary occupies a bleak position, some of the hives facing east and south-east, and the entrances have been kept at summer width, the narrowest being six inches, and others the whole width of the hive, while severe frost and snow, with easterly winds, have prevailed for many weeks.

Spring Examination of Colonies.—Most apiarists recommend a thorough examination of all colonies at spring. Columella advised that the hives should be opened at spring, and all filth which had accumulated during the winter should be removed; and most modern bee-keepers follow his advice. Spring is rather a loose term, and allows a wide margin as to the precise time of this general examination. Our own idea is that the middle or end of the present month is soon enough, and that it should be performed in fine weather only. The colonies should be disturbed as little as possible during the examination, and to this end we prefer the use of diluted carbolic acid in preference to smoke. (See *Modern Bee-keeping*, p. 29.) An old calico or woollen quilt steeped in the solution, and laid over the frames of the hive will effectually quiet the bees, when operations may be commenced. A spare hive and floor-board, perfectly dry and clean, should be placed on the stand of the hive under examination, the latter having been removed a couple of feet to one side. Leave the brood-nest until last, removing the surrounding frames on both sides one by one to the new hive. When the next is reached, if breeding is in progress, we prefer to transfer the four or five frames which compose it without separating them, which may easily be done by placing two short laths or thick pieces of wire under both ends of the frames and removing them altogether. It is not at all necessary to 'interview' the queen if you are convinced she is there and performing her duties. The outside frames having been replaced in their former position, division-boards may be applied as required, sealed honey supplied if needed, and the quilts returned. The signs of breeding will be occasional dead larvæ on the floor-board, eggs or brood in the comb, vigour and dash of the bees carrying in pollen, &c. The emptied hive, when scraped, disinfected, and dried, will be ready for the next operation. These manipulations must be performed quietly but quickly, giving no chance of robbing, to prevent which all frames not under inspection should be covered with the carbolised cloth. With a little practice it is surprising how quickly these examinations may be accomplished. When the enamel sheet is used there is great advantage in its lightness, flexibility, and in the non-adherence to it of propolis. It may be stripped off the frames quickly, and a slight spraying of weak carbolic solution will at once keep the bees in check, when it should be allowed

to fall back into its place, and each frame may be uncovered separately as required. The condition of the colony as regards population, stores, brood, &c., should be noted either on tablets attached to the hives or in a book kept for the purpose, together with the date of examination.

Artificial Pollen, &c.—On every bright day bees will now be very busy on the crocus and other spring blooms, on which the scattering of pea or other meal will greatly assist them. A supply of water must not be neglected. Also on bright days remove hive-roofs, or covers, turning them up to the sun, but do not forget when night comes to replace them. Dislodge spiders, their eggs, larvæ of moths, &c.

Coming Campaign.—These matters completed, a beginning will have been made for the approaching campaign, and bee-keepers and bees will have been aroused to make further preparation for reaping a future harvest.

Stimulating.—By 'stimulation' is usually understood a supply of food given in driblets, generally at spring time. The system has its advocates and opponents. The former argue that the bees and queen perceiving that food is coming in are incited thereby to earlier preparation for brood-rearing than would otherwise have taken place. The latter, granting this, are of opinion that the bees, stimulated to early brood-rearing, are induced to leave the hive in search of pollen, water, or food at unseasonable times and during the prevalence of cold spring winds, and so perish in numbers, being chilled and unable to reach their hives, hence follows spring dwindling with its attendant evils, until finally the colony is often lost. In our opinion spring dwindling arises chiefly from another cause, viz., dysentery or diarrhœa. The intestines having become diseased by improper food, and too low a temperature, the vitality of the colony is reduced, and that to so great an extent that its members perish while in search of food and in the performance of their heavy spring labours. Once entered upon the downward road the final catastrophe soon follows, the brood-nest becoming circumscribed, no matter how prolific the queen may be, it gradually becomes less and less; eggs laid are neglected or devoured owing to the paucity of nurse-bees to incubate them, and the end comes through robbery, desertion, or death. We have never found judicious feeding of fairly populous colonies at spring injurious, but care must be taken to feed so sparingly that the brood-nest shall not become a repository for food instead of brood. Many colonies have at spring more honey than their wants demand. In such cases we prefer the repeated uncapping of a few cells near the brood-nest to give syrup, the stimulating effect being quite as great, and, as the brood is extended, the outer clogged honey-combs may be extracted and returned to the hive. This plan is productive of more extensive and more certain stimulation of brood-rearing than any other with which we are acquainted.

Food Recipe.—The following recipe is recommended by Mr. Heddon:—

'Into a boiling-pan put three pounds of water, heating it until it boils, and with a wooden spoon stir the water as you sift into it ten pounds of granulated sugar. When it is all dissolved, and the syrup is boiling, pour in one half teacupful of water in which has previously been dissolved a level teaspoonful of tartaric acid. Stir it a moment longer, and then remove it from the fire. Give the syrup warm (not hot).'

For spring use from four to six pounds (say pints) of water may be used. Duncan's Pearl sugar we think the best of any we have used. For stimulating, a bottle-feeder is best, and from two to six holes may be used, according to the size and needs of the colony. The food should be given warm at night to prevent robbing; and as a further precaution the entrance must be contracted.

Committee Criticised.—Since the work of the acting Committee of the B.B.K.A. is often freely canvassed and criticised,—not always in the most flattering manner,—the unbiassed opinion of an outside friend, who writes to us as follows, may fairly be given:—

'It strikes me that Captain Bush's view of reducing the qualifying subscription for membership on the Committee is the correct one. I cannot understand how a man can be expected to attend from twelve to eighteen meetings in the year, to travel, say, from fifty to a hundred miles (the double journey), and, in not a few cases, be obliged to undergo the expense of passing a night at a London hotel,—from inabilitity to reach his home,—and yet be unable to subscribe his pound to the funds of the Association! I do not wonder that you find a difficulty in inducing qualified men to give their time and money—no doubt, often at great inconvenience to themselves—at such a rate, in order to advance bee-keeping chiefly amongst cottagers, however favourite the pursuit may be. To me it speaks volumes for the patriotic spirit of our leading bee-keepers, that on such terms you are able to procure an acting Committee at all.'

To our friend we replied that—'The case being thus, all the more reason why members of Committee should be relieved from an annual subscription of one pound; in fact, that the argument cut both ways.' We do not anticipate, indeed, a revolution, from the reduction of the franchise, and believe that even universal suffrage will not destroy the edifice built upon a foundation so secure.

JOTTINGS BY AMATEUR EXPERT.

'Mel sapit Omnia.'

Glorious weather for bees and bee-keepers! My queens are all breeding except one—that Holy Land—and all hives have plenty of stores and bees. But stores will decrease fast now, with bees active and queens breeding, let us remember. 'Expert-in-Chief' Baldwin predicts a good year, as bees have wintered well, if—that *if* is the rub—their owners will only give them proper care during the spring. Tell us, 'A. E.,' what is proper care? Meddle as little as possible, meddle as much as necessary, but always see to it, above all things, that they never for one hour are short of food right up to the time of the clover glut.

I hope the delusion of ever getting bees to store much from fruit-blossoms in England is about exploded by this time. An enthusiastic contributor to our *Journal* talked last year of getting *one ton* from this source alone, but I never heard that he succeeded. I shall be pleased to hear that his hopes were realised, as I could but admire his courage when he put the 'hope' in print, and must confess his courage alone merited success.

If you wish to live a life of peace now-a-days you must praise everything, and if you depart from that path the 'fortune of war' is your portion. Well, come war or come peace, I confess I deem it necessary to put in a word of caution to those who are young or unsuccessful at bee-keeping. As bad workmen complain of their tools, so unsuccessful bee-keepers hope to get on better if they get expensive and elaborate appliances and hives. And if they are readers of the *B. B. J.* they will find plenty to allure them into investing their money. Hive construction, like most things, has its cycles. We are emerging from the simple on to the elaborate; the last cycle of the elaborate reached its zenith about the year 1882, when we had hives with brass runners to support the frames, so that you might summer on the 'cool' system, and winter on the 'hot.' Hives with 'peep-holes' and glass shutters, trap-doors, knobs, and buttons and hooks *ad lib.*, sections 'in front of them,' sections 'in rear of them,' sections 'each side of them,' and crates of sections on the top. Added to this there was excluder-zinc here, there, and everywhere; and cushions enough almost to pad an ordinary armchair. They were things 'fearfully and wonderfully made,'

and the price of twenty such hives would build a cottage.

But all this has given way in great part for a neat, simple class of hive, fitted with ten or eleven 'Standard' frames and good porches and roofs, and most of us have found that by good management with such hives we can more than double the record in bad seasons that we used to get when we used 'fads' and lots of manipulation, even if seasons were better. And now we are coolly asked to go back to this kind of thing again. The old birds won't be caught with chaff, so I don't attempt to advise them, but to the younger I say, 'Save your money,' at least all of it except threepence: and with that go and purchase Mr. Cowan's new '*Guide-book* Pamphlet' on *Doubling and Storifying*. I had hoped some one would have said a good word for it in the *Journal* long ere this.

Mr. Pettit, the President of the Ontario Bee-keepers' Association, has gone home from London to Canada a convert to its teachings, and in his Presidential address at Toronto the other day almost went so far as to beg of the Canadians to adopt it. Mr. Cowan has set himself the task of showing how 'honey can be produced profitably in this country at the present low price with very little trouble, and with very much less apparatus than is usually employed by bee-keepers;' and in my judgment he has succeeded admirably, and if you are bewildered by the allurements that are being spread around at the present time, there can be no better advice than is given in these sixteen pages of this pamphlet, for remember, 'It is the expensive appliances, frequently more for show than use, which run away with all the profit, and leave the bee-keeper at the end of the year with a deficit.'

Some are complaining that our 'Standard' frame is too shallow. The Americans and Canadians have used a deeper frame for years, and their newest 'craze' is the shallow 'Heddon,' but our 'Standard' is a happy medium between the two extremes.

I wish I lived in Sussex, for having conquered my small world, I thought of sitting down to weep for other (bee) worlds to conquer; but however much I sympathise with 'A Forest Bee,' Sussex is too far away to get any help from—AMATEUR EXPERT.

ASSOCIATIONS.

LANCASHIRE AND CHESHIRE BEE-KEEPERS' ASSOCIATION.

The Annual Meeting of the above Association was held at the Bear's Paw Restaurant, Liverpool, on Tuesday, the 8th of February, C. P. Titherley, Esq. in the chair. Present: Rev. J. F. Buckler, Colonel Herne, Messrs. W. B. Carr, W. Lyon, W. Liddell, W. Caldwell, G. Roberts, W. L. Maclure, and F. H. Carr.

The accounts of the Association were presented to the meeting, and after the minute of the Committee with reference to the donation of 10*l.* to the B. B. K. A. for the Royal Horticultural Show held at Liverpool had been read, they were passed unanimously.

The report of the Committee for 1886 was read by the Rev. J. F. Buckler, and passed unanimously.

The report states that the Committee have much satisfaction in noting the success which has attended the Association's work during 1886, which has been chiefly in connection with shows, viz.:—June 29th to July 5th, Royal Horticultural at Liverpool, in connexion with the British B. K. A. July 24th, Huyton and Whiston Cottagers' Horticultural Society. July 30th to August 5th, South Kensington Honey Show. August 2nd, Frodsham. August 5th, Barrow, Chester. August 25th, Handbridge, Chester. August 25th, Lancaster. September 9th to 11th, Manchester and Liverpool Agricultural Society's Show, held at Chester. As no charge for admission could be made to the bee tents at the Liverpool Show, there was an outlay of over 10*l.*, which was to some extent covered by special donations. The exhibit sent to South Kensington will long be remembered by those who saw it, as far ahead of any other sent to the county competition, which was the first held by the British Bee-keepers' Association. The expenses connected with this exhibit were heavy, but having taken the first prize, and many members giving special donations to the cost, and as those who took charge of it worked gratuitously, the nett cost is a small charge on the year's accounts. Of the 283 members referred to in the Report for 1885, 105 have resigned; 60 have joined, leaving 238 members' names on the books, including 41 in the artizan and cottager list. The disposing of members' honey is a question which has had attention, and a good quantity has been sold at remunerative prices; and it is hoped the committee for 1887 will be able to arrange the sale of even a larger quantity. The committee think it well to put on record that the first conversazione held by members of the Association took place in December, 1886, and though the number present (about 60) was not as large as might have been expected from the long list of members, still, as a successful commencement has been made, they hope meetings of a similar kind will often be held in the future by the L. and C. B. K. A., as such meetings bring the members and their friends together. Through the kindness of examiners from the British Bee-keepers' Association, candidates had a chance of getting third-class certificates at the time of the Royal Horticultural Show held at Liverpool, and once since; but of the ten candidates who came for examination, only three obtained certificates. It is a great satisfaction to your committee that this year's work has been done in good harmony with the British Bee-keepers' Association.

Some alterations of rules were proposed by Mr. M'Clure.

The Patrons, President, and Vice-presidents were unanimously re-elected. Rev. J. F. Buckler, Col. Herne, Messrs. W. B. Carr, J. M. Gibbs, Wm. Lees M'Clure, Geo. Roberts, Wm. Roberts, H. H. Williams, G. G. Parker, and George Aitken, were appointed the Committee for 1887. Wm. Lees M'Clure was appointed Honorary Secretary, and Mr. W. Tyrer, Treasurer. Mr. Wm. Lees M'Clure was appointed to attend the quarterly conferences in London; Mr. F. H. Carr, expert; Mr. J. A. Bally, auditor of the Association, and Mr. Gibbs was re-appointed Librarian. A vote of thanks was given to all the officers of the Association.

After the Annual Meeting a committee-meeting was held, when it was proposed and carried unanimously, that the Committee meetings be held on the fourth Monday of each month, except when that day falls on or after the 25th of the month, and in that event the committee are to meet on the third Monday of the month.

WORCESTERSHIRE BEE-KEEPERS' ASSOCIATION.

The annual meeting in connexion with this Association was held on February 19, 1887, at the Guildhall, Worcester. The Rev. E. W. Isaac presided in the absence of the Mayor (Alderman Holland), and among those also present were the Revs. R. T. W. Brayne and W. M. Kingsmill, Mrs. Swinden, Messrs. H. Goldingham, J. A. Watson, T. Cook, C. H. Haynes, J. Powell, G. H. Latty, E. A. Dimmock, A. Thorpe, A. E. Bryan, J. W. W. Boughton, H. W. Carey, J. Neal, A. H. Martin (Hon. Sec.), E. Davenport (Expert to the Association), &c.

The annual report stated that the work done during the past year had been curtailed owing to the apathy of the members themselves by the non-payment of sub-

scriptions, and by a want of interest shown in the promotion of the objects which the Association had in view. The number of members at the close of the year was 186. The total income had amounted to 55*l.* 2*s.* 8*d.*, and there was a balance of 8*l.* 6*s.* 4*d.* in the hands of the treasurer, as compared with an adverse balance of 3*l.* 5*s.* 6*d.* at the beginning of the year. Early in April Mr. C. Brown resigned the appointment of expert to the Association. Mr. Davenport, of Stourport, who had held the office of expert to the Hants and Isle of Wight Bee-keepers' Association, and had a first-class expert certificate from the B. B. K. A., was elected to the vacant post, and made a tour among the members. Owing to a want of funds, the committee were reluctantly compelled to abandon the holding of an annual show of bees, hives, honey, and apiarian appliances, and they wished to impress upon members that if one was to be held in the coming year a special subscription must be raised to defray the expenses of the same. The committee had determined to circulate the *Bee Journal* every fortnight among the members during the ensuing year. The committee regretted the removal from the county of Mrs. Piers F. Legh, who had given the Association most valuable help ever since it was started. In conclusion the committee expressed the hope that members would take more interest in the Association, and bear in mind that one of the main advantages to be gained from membership was that the members would probably learn something about bee-keeping themselves and might help to instruct others who know little or nothing about it.

On the motion of Mr. Latty, seconded by Mr. Cook, the report was adopted.

Mr. Davenport (expert) said he commenced his tour of inspection among members towards the end of April, but owing to serious domestic affliction, his visits were considerably interfered with. In many instances he found very good results, which showed that in spite of indifference amongst some of the members the work of the Association had not been in vain. As to the future of the Association, it would require the united efforts of members if its prosperity were to be increased. Among certain things which he regarded as important, he suggested the division of the county into districts, with a secretary and adviser in each district. As to the bee tent, he thought the time was past when they could expect to make it a source of large profit at the various horticultural shows, and he suggested its being thrown open free of charge, and hoped that contributions would be voluntarily tendered. He thought that driving from the old skep should be abandoned to a certain extent, and more attention given on these occasions to bar-framed hives.

Mr. A. H. Martin said they were obliged to Mr. Davenport for his report, and he hoped that the work of the bee tent would be extended. With regard to throwing it open, he should like to see it sent to every village green in the county and demonstrations given to the villagers in the summer evenings. He much regretted that, owing to want of funds, their operations had been somewhat curtailed, but he trusted that the coming season would bring increased prosperity to the Association.

Mr. Goldingham said that the Association was to a great extent a trading Association, and he considered the suggestion of throwing the bee tent open at horticultural shows a very good one.

Earl Beauchamp was re-elected President of the Association, and the following were elected Vice-Presidents:—The Bishop of Worcester, Lady Hindlip, Lady Georgina Vernon, Lord Edward S. Churchill, Sir Richard Temple, Bart., M.P., Sir E. A. H. Lechmere, Bart., M.P., Mr. John Corbett, M.P., the Hon. G. H. Allsopp, M.P., and the Mayor of Worcester. Mr. T. J. Slatter was re-elected Honorary Treasurer, and Mr. A. H. Martin Honorary Secretary. Mr. A. H. Martin and Mr. C. H. Haynes were appointed as representatives of the Association at the Conferences of the British Bee-keepers' Association.

The annual ballot for hives resulted in Mrs. Huddleston, of Dunley, Stourport, and Michael Portman, of Astwood Bank, being the winners.

The Chairman said a most pleasing duty remained for him to propose a vote of thanks to their Hon. Secretary for the attention he had bestowed on the work of the Association, and they were all greatly indebted to him for all he had done. This was seconded by Mr. Goldingham.

Mr. Martin, in returning thanks, said he was one of those who believed that, although much had been accomplished in the past, there was a great future before the bee-keepers of this country. The great apiarian exhibition held last July, and the exhibition of the Ontario bee-keepers later in the year, at the Colonial Exhibition, should stimulate them to continue their exertions in the objects which the County Associations were endeavouring to promote. In conclusion, he proposed a vote of thanks to the Chairman for presiding at the meeting, and said that the committee must shortly meet to consider the suggestions that had been proposed for the working of the Association in the coming season.

MIDDLESEX BEE-KEEPERS' ASSOCIATION.

The Annual meeting of this Association was held on Thursday, February 10th, the Baroness Burdett-Coutts in the chair. Present: Dr. Rayner, Major Fair, Messrs. W. H. Kemell, W. M. Graham, J. Peers, T. Leadbitter, G. Henderson, O. Lambert, R. Rose, S. J. Gunn, G. Moyes, and the hon. sec. the Hon. and Rev. H. Bligh. The following resolution was carried unanimously:—'The members of the Middlesex Bee-keepers' Association desire to express the deep-felt sorrow and sincere regret with which they have heard of the sad news of the sudden and early death of their late secretary, Mr. Fox Kenworthy. They feel that the well-known excellence of his character, the deep interest which he took in the affairs of the Association, and his unwearied labours for it, will make his loss more keenly felt by them. They would give expression to their sense of gratitude which they owe to him for the present state of efficiency to which, mainly by his labour, the Association has been raised. They beg leave to offer to Mrs. Kenworthy and her family their sincere condolence, and to assure her of the very great respect and esteem in which the memory of her son is held by them.'

The Baroness Burdett-Coutts was elected President for the ensuing year; Vice-presidents, Lord George Hamilton, the Right. Hon. S. H. Walpole, Sir J. Lubbock, the Hon. and Rev. H. Bligh, Mr. Nelson, and Mr. Lafone: treasurer, Mr. Rose; hon. sec., the Hon. and Rev. H. Bligh; provincial secretaries, Major Fair, and Messrs. Graham and Harris; committee, Messrs. Jones, Henderson, Zehetmayr, Mason, and Lambert; auditor, Mr. W. G. Jefferys; expert, Mr. Fewtrell.

Mr. Bligh presented the statement of accounts for the South Kensington show, and announced that the Baroness Burdett-Coutts had kindly cleared the deficiency amounting to 12*l.* or 13*l.* A vote of thanks to the Baroness Burdett-Coutts for her liberality and kindness in presiding was carried unanimously.

The following is an abstract of the report:—Increase in the number of members, a growing interest in bee-keeping, and a marked improvement in the method and practice of the bee-keepers of the county, are among the satisfactory results which the committee are enabled to record in this their fourth annual report. The early months of the year were made use of for a series of lectures on bee-keeping, most of them delivered by the Rev. W. E. Burkitt, Rector of Buttermere, Wilts, and

Secretary of the Wilts County Association, given at Ealing, Hampton Hill, Brentford, Pinner, Sudbury, Staines, Uxbridge, and Twickenham. As soon as the bees had got into regular working order, the usual spring tour was made by Mr. Fewtrell, B.B.K.A., first-class expert, over the larger portion of the county; whilst Mr. Baldwin, Expert-in-Chief of the B.B.K.A., broke up some new ground in the north-east corner of the county. In the general working of the Association the district system has been further developed, and the committee gladly record that three new districts are now efficiently worked, where a year ago little or nothing was being done. The number of members added during the year to the roll of the Association is perhaps the best proof of the advance which it has made. At the beginning of the year 1886, there were 139 members; there are 200 names upon the books now, or a net gain of 61. In the great exhibition of Honey and Bee-keeping appliances at the Indian and Colonial Exhibition at South Kensington in the competition between the counties of England, our Association competed, and staged, as a single exhibit, 6 cwt. of honey (232 lbs. sections and 440 lbs. extracted), out of 9 cwt. contributed by 24 members for the purpose. Our exhibit did not take a prize; but, at the same time, was universally acknowledged to have been one of the most striking features of the show. Ten, at least, of the exhibitors will receive the large bronze medal given by the Executive of the Colonial Exhibition, and the rest will receive a certificate of merit. In the spring, the committee secured at second-hand, and at a very moderate outlay, a good manipulating tent, which, for all practical purposes, was equal to new. This was brought into requisition at several flower shows. With a view to the increase in the number of members, and also to secure the early payment of subscriptions, the committee have determined to return to all whose subscriptions are paid by the 31st of January ten per cent in the shape of prizes to be drawn for at the annual meeting.

During the progress of the meeting the drawing for prizes took place. Ninety-seven members had qualified themselves to take part in the drawing, and the following nineteen won prizes:—M. de Paula, hive; Miss Morgan, Bingham smoker; Miss Heyn, Benthall crate; Mr. A. Mitchell, Benthall crate; Mr. F. Hughes, Benthall crate; Mr. Harveyson, Abbott cage; Mr. C. J. Athey, Abbott cage; Miss George, Bingham knife; Mr. Campbell, Abbott feeder; Miss C. Hale, Raynor feeder; Mr. H. Jonas, section crate; Mr. A. Stent, feeder; Mr. D. H. Durrant, feeder; Mr. W. Hinde, Bingham knife; Mr. W. Willan, atomizer; Baroness Burdett-Coutts, smoker; Mr. B. Johnson, wire veil; Mr. Wall, veil; Mr. Bligh, 100 sections.

BERKS BEE-KEEPERS' ASSOCIATION.

The Berks Bee-keepers' Association opened the campaign of 1887 by a social meeting at the Assembly Rooms, Friar Street, Reading, on Thursday last, February 24. A committee meeting was held previous to the social to elect a hon. secretary in place of Mr. J. Bowley, who has removed from the county, and we were pleased that the Rev. Roland Errington, Rector of Clewer, has kindly undertaken the duties of hon. secretary with Mr. A. D. Woodley, 26 Donnington Road, Reading, as assistant secretary. That being the only item on the agenda paper a vote of thanks was accorded to Mr. Errington for consenting to take the office, the meeting adjourned *sine die*.

The social meeting opened at eight o'clock, and the spacious room was soon a busy scene inspecting the many interesting articles kindly brought by friends. Mr. Blow, of Welwyn, brought his new hive, recently limned in *British Bee Journal*, also one of his Carniolan hives with painted front, said painting representing the Old Testament story of the two she-bears tearing the children who cried to the Prophet, 'Go up, thou bald-head;' also several physiological subjects illustrating the honey-bee. Mr. Webster, Wokingham, exhibited his 'Jones-Heddon' hive, fumigators, foundation, and frame-lifters, &c. Mr. A. D. Woodley, Reading, a new reversible crate, new cheap hive similar to the Sandringham hive, also a Combination hive, and miscellaneous articles and literature connected with the craft. Messrs. Abbott, Southall, sent a collection of small articles; a friend with a microscope and microscopic slides came in for a fair share of attention. There was the hearty grip of the hand by brother bee-keepers whom we had not met for a season, short lectures by bee-keepers of known ability, viz., Messrs. Blow, Webster, and A. D. Woodley, each illustrated by the magic lantern with photographic slides taken from the object depicted; selections of music in the intervals between the lectures by Mrs. Frank Cooksey, who kindly and ably presided at the pianoforte; comestibles, nearly all containing honey in some shape or form; and though we did not go the length of sweetening our tea and coffee with honey, we certainly enjoyed the delicious honey ices Mrs. Curry regaled us with. Miss Darvill, of Reading, had a fine display of sweets and sweetmeats, many of them containing honey. Mr. Blow's hive was considered a great advance on the Jones-Heddon for our climate and style of wintering, though the general opinion of the meeting, as far as I could gather by remarks passed by practical bee-keepers, was decidedly in favour of the English Combination Hive, which has been proved to be adapted to the requirements of the bees, as also of bee-masters for every style of supering either for extracted or comb honey, and the consensus of opinion on the 'Jones-Heddon' hive was to go slowly with it. Altogether a very pleasant and profitable evening was spent, and great credit is due to Mrs. Curry for the admirable way in which she superintended the affair from the beginning.—YOUR CORRESPONDENT.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Upper St. Martin's Lane, London, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *King's Langley, Herts (see 2nd page of Advertisements).*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

OUR HONEY IMPORTS.

The value of honey imported into the United Kingdom during the month of January 1887 amounted to 736*l*. [From a return furnished by the Statistic Department, H.M. Customs, to E. H. Bellairs, Wingfield House, near Christchurch.]

WHEN DOCTORS DIFFER WHO SHALL DECIDE?

[837.] Mr. Simmins, in his description of his very ingeniously contrived 'Universal Hive,' says: 'This hive has had three years of careful consideration, because I had found the standard frame (14 by 8½ inches) decidedly inferior to larger frames I had formerly used. After various experiences, a frame 14 by 14 has been found the most appropriate, all things considered, as it enables a stock to build up more rapidly in early spring and gives greater security in winter, as the stores are arranged in the best possible position in relation to the cluster.' Mr. Simmins

says, 'As a single frame the present *standard* is too small; as a storifying frame it is too large.'

Mr. Cowan does *not* consider the standard frame too large for storifying, for, in his useful little pamphlet, *Doubling and Storifying*, he illustrates three or four hives high having standard frames, and tells us how large quantities of extracted honey can be obtained by storifying with these hives.

Mr. Broughton Carr advocates the use of the Carr-Stewarton-size hive somewhat modified, having a frame 14 by 5½, three inches less in depth than the standard. It is illustrated, and his management is fully described in the *Bee-keeper's Record* of January last. Mr. Broughton Carr is an old and advanced bee-keeper, and we have recently had an opportunity of witnessing the success of his system of management in the beautiful honey he exhibited in the county competition at South Kensington, and also of seeing the *small* frames of combs from which the honey had been extracted.

Dr. Tinker, an advanced American bee-keeper, has given up the 'Gallup frame,' which is 11¼ by 11¼, and has adopted a shallower and longer frame, 9⅝ deep by 14⅜ wide. He says:—'I had abandoned side storing, and with that the "Gallup frame," as it did not present enough surplus room on the top of ten frames to correspond with the large amount of brood-comb below. The other objection was in the distance that the frame had to be lifted to get it out of the hive. The greater facility in lifting out a shallow frame will not be fully realised by any one till they try one by the side of a deep frame.' If this is felt in a difference of depth of 9⅝ and 11¼ inches, how much more will it in the case of the standard 8⅜, and Mr. Simmins' frame, 14 inches!

The reasons above given by Mr. Simmins for the necessity of changing from the standard to a much larger frame do not appear to me to be sufficiently conclusive to render such a change desirable. I have never had any difficulty in wintering stocks and building them up in spring, if they have not been robbed too much and have had ample natural stores to carry them through, and have not been disturbed during the winter. These stores would be in the 'best possible position,' the upper part of the comb in the standard frame as in the larger 14 by 14 frame; and if the hive has been properly prepared and contracted in the autumn, so that the bees have only just as many frames of comb as they can cover, with winter passages cut through them, a good queen and a dry hive, there should be no difficulty. The 'rapidly' building up—in both cases, I presume—is done by judicious stimulative feeding and spreading the brood from time to time, as the bees hatch out to cover the combs and become crowded. If this system is correct I fail to see the advantage the larger frame has over the standard.

A hive containing ten standard frames, taking outside measurement of the two breeding surfaces of each frame, equals 2380 superficial inches; whereas a hive of six frames 14 by 14 equals 2352 inches, only 28 inches of surface less than the ten standard frames. Those who work for comb honey frequently reduce the breeding-space to nine and even eight standard frames. Taking the superficial area of the top of frames on which to place supers, we have in the case of the ten standard frames 217 inches, which would take the ordinary crate of twenty-one sections. In the case of the six large frames of Mr. Simmins, only fourteen sections could be placed without projecting beyond the area of these frames. I am aware that Mr. Simmins has had great experience with bees, although I do not recollect seeing his name as a large exhibitor of honey at any of our principal exhibitions. Perhaps he can tell your readers the amount of honey he has taken from hives having 14 by 14 frames, and the number used in each storey. The standard frame is now almost universally used in England; and, depend upon it, if the seasons are propitious, the management judicious, and the bees are not *over-manipulated*, as much honey will be obtained in a well-constructed hive with *standard* frames as in any other yet invented. I have been induced to make these few remarks knowing that there are a few—and I believe only a few—who would like another size frame adopted.—JOHN M. HOOKER.

FOREIGN BEES.

[838.] The very important question as to the superiority, or otherwise, of foreign bees and their suitability to our climate, is one that can only be decided, I think, by experience; and that not of one or two bee-keepers merely, but of many in different parts of the country. Will you, therefore, grant me a little space in which to relate my own experience, premising that though I am not a bee-keeper on a large scale—my stock rarely exceeding thirty hives at one time—yet I have for many years given very careful attention to the subject, and know as much about it, perhaps, as most people?

My first Ligurian queen was purchased several years ago of Messrs. Edey, of St. Neots, and she was certainly all I expected her to be—gentle, handsome, and extremely prolific; and her progeny for several generations have retained their good qualities, and though, of course, crossed with the common black bee, were never especially fierce or unmanageable. I have some of this strain now, as good bees as one need have, but on the whole I have not found them better honey-gatherers than the native blacks, as they waste their energies in working and breeding at unprofitable times.

I afterwards bought two queens, so-called Ligurians, of one of the most noted dealers—I won't now mention names—very handsome bees—one especially was of a lovely gold colour. But neither was so prolific as a common native queen. The progeny proved idle and fierce, and the next generation so bad every way, and especially so savage, that I was most thankful to root them all out and re-queen with anything I could get.

Last year I resolved to try Carniolans, having heard so much of their gentleness. So I applied early in the year to what I thought was the best source of supply for a queen of undoubted purity and good quality, and one was sent me in due course. Imagine my disappointment at finding her bees about as difficult to handle as Cyprians! And I have since heard from the importer that it is very possible she is merely a hybrid. This is very satisfactory as an explanation, but it hardly consoles one for the loss of a season and the full price of a best queen.

I may add that my so-called Carniolan is extremely prolific, and so also are two queens that I reared from her last autumn, all three have wintered well. All this goes to show that one may possibly get a good foreign bee. But in the present uncertainty as to quality, it is safer to stick to those of one's own rearing, as showing the difference between the two races.

I may say that, at the present time—end of February—in my own apiary all the bees of foreign extraction have brood in all stages, but the black stocks have not yet commenced to breed so far as I can tell. This is a cold situation on the Derbyshire hills.—GEORGE SHIPTON.

CANADIAN HIVES—CYPRIANS—CHAPMAN HONEY PLANT.

[839.] On p. 605 of last volume of *B. B. J.* appears a letter from Mr. C. N. Abbott, in which he says: 'A young friend lately arrived at Ontario; in his first letter to me, after having settled down, Nov. 20th, 1886, writes "A few days past I was at a show at Caledonia, but did not see any bees and hives (frame-hives) such as you have at Southall. The hives were very funny-

looking objects, something like those of twenty years ago." These are but a few words, but to my mind they let in a deal of light on a big subject, as they show that the principles sought to be thrust upon English bee-keepers by our late Canadian visitors are not general in their own home counties, or surely at a large show there would have been a sufficient display of frame-hives, amongst the many, to have rendered the presence of ancient hives alone less remarkable, particularly to a young man who is not, and never has been, a bee-keeper.'

Now I am not going to dispute the statement that there were funny-looking hives without frames at the show referred to—it is just possible that such was the case. We have in Ontario, as well as you have in England, eccentric people that do funny things, but the fact remains undisturbed that moveable frame-hives are not only generally, but universally, used by professional bee-keepers.

That last-quoted remark, 'particularly to a young man who has not, and never has been, a bee-keeper, are but a few words, but to my mind they let in a deal of light.' It occurs to me that in all probability the young friend was looking at butter-firkins, washing-machines, or some other wooden ware. Such mistakes often occur. If Caledonia had a large show it was only so comparatively, for it is but a small place indeed.

I guess the most of us will agree that Mr. Abbott is about right about the stinging qualities of Cyprian bees; but is it not more than a year or two ago since they were brought to England and Canada?

I feel quite sure that we all owe a vote of thanks to Mr. Abbott for the opportune warning he has given about the so-called Chapman honey-plant. The Committee appointed by the North American Bee-keepers' Association to report upon said plant ascribe to it all the characteristics of a much-to-be-dreaded noxious weed. They report that it is perennial, seeds itself, is a strong growing plant, will root out all other vegetation, and, I learn from another source, that stocks will not eat it. Now I submit that any plant answering to the above description must necessarily be a noxious weed, and yet the said Committee think there is no danger. What more could be said of sour-dock, ox-eye daisy, ragweed, pigeon-weed, Canada thistle, and many more troublesome weeds? I sincerely hope that those who contemplate buying or selling and scattering noxious weeds will think fairly before acting. Surely the farmer has enough to contend with already, and we bee-keepers should think a second time, and honestly too, before adding anything more to his already too heavy burden. —S. T. Pettit, *Belmont, Ontario, Canada, January* 25.

P.S.—I have just returned from a visiting trip through Kent, Essex, and Lambton, and find that those who winter out-doors begin to complain of too steady cold weather. We have just had a big thaw, but the weather was unsuitable for the bees to get a good flight. Most of us begin to think that in-door wintering is the only safe way here.—S. T. P.

A BEEMAN'S TRIP TO AMERICA.

(*Continued from page* 7.)

Mr. A. I. Root's Establishment.

[840.] In my last I promised to give an account of my visit to Mr. Root at Medina, feeling sure that an account of the largest bee-keepers' supply in the world could not be without interest to your readers.

Although I reached Medina some time after working hours I found Mr. Root still busy in the office. The motto of the establishment is evidently 'By industry shall ye thrive,' for there was no encouragement either by example or precept for idlers. A ready welcome was accorded me, and the next few days were most enjoyably spent in exploring the different departments and discussing the merits of the various processes. The little picture is a fair one of the factory as it was a few years ago, but it is now about double as large, and the substantial way in which it is built plainly shows the owner's confidence in the future of bee-keeping. The

first object of interest was a new engine of ninety horse-power and most improved construction, which had just displaced a smaller one and which was separated by a stout fire-proof wall from the wood-working department.

In this shop were machines for making nearly every wooden article that a bee-keeper could require. Two planers, half-a-dozen machines for different parts of section-making, a borer, and many saw-benches of different patterns were to be found amongst the number, and others were being fitted up, this shop being all new and not yet in full swing.

A capital feature in this department was a system of big tin tubes which, being connected at one end with the furnace, and at the extremities with each machine, and being also in connexion with a centrifugal fan, carried away all sawdust and chips and put them right into the fire. Besides saving sweeping and stoking, the purity of the air, which this ensured, added greatly to the comfort of the workmen. Above this department were the paint and tin shops where there was every facility for turning out extractors, smokers, &c. In the base of the older building I found the engineers' shop, where skilled hands were fitting up saw-spindles, foundation-mills, &c.

The arrangements for cutting the rolls of the latter were most ingenious, but too complicated for description. There were also a machine for perforating zinc and one for grinding plane irons, the advantages of doing all possible work at home being fully recognised. This idea was so thoroughly carried out, that not only was all the printing and bookbinding done on the premises, but there was even a machine for making envelopes. I will not tire you with details of my visits to the packing, printing, book-keeping, or similar departments, but after having refreshed at the 'lunch-room,' will pass on to the 'counter-store.' This is a feature which is greatly appreciated by bee-keepers living at a distance from towns, as the stock consists of hundreds of articles of domestic use, which such customers find it very convenient to order with their bee-goods, as the prices of all things are moderate, and their utility can be relied on. Of course one of the first pleasures of the visit was an introduction to Mr. Root's son, Ernest, to whom I am indebted for most of my information. The bees were naturally in winter quarters, so I could not see much of them. In the foundation-room there was also not much to be seen as most folks like their comb freshly made. Mr. Root's ideas on bee-keeping are so ably and frequently given in his *Gleanings* and in his *A B C of Bee-culture*, that any remarks on them would be tedious; but I would strongly advise all bee-keepers who have not seen the latter book to order it at once of their supply dealer as it is full of interesting matter of all sorts.—J. A. Abbott, *Southall, February* 1887.

INVERTIBLE HIVES AND HOW I USE THEM.

[841.] Will you allow me a small space in your *Journal* to say what hives I use and how I use them? Some seem to want some information on the plan. But, first, let me say to W. Soar that his cap won't fit, so he must please wear it himself or try it on some one else. I am not a hive-manufacturer, or have I any connexions with any, although I make my own hives and appliances, and look after my 200 stocks myself, so that W. S. need not be afraid of my grinding my axe at his expense, or at any cottager's; and had I seen Blow's British Heddon hive I should have given the same advice for cottagers to use it as I did the Jones Heddon. I have not seen what the thickness is to be of the imported hive. Has anybody told W. S. that it is to be the same as the one exhibited? I quite agree that it wants an outer case,—that I always use; so I believe you do, Mr. Editor, and I think there's no hive to equal it. And now to my mode of working. In 1885 I made up my mind to invert some hives, and the first were four straw skeps: that was an easy matter, as I had some straw skeps with cheese-boxes over them. This was done for the convenience of supering and feeding, as I had a hole in the top of the hive and the bottom of the cheese-box. Now, any cottager can manage this job, and the time to turn them is when the bees are ready to swarm and the flow of honey coming in. I use them in an outer case, and all is kept snug out of wind and rain. As I could not see what was going on in straw skeps, I thought I would try some bar-frame hives for that purpose. I made a few ten-bar hives, rabbeting the sides double the proper depth, so that the tops of the bars were free from the floor-board when upside down. The frames had a bit of wood nailed to each corner, so they could be all wedged up tight together: these were inverted in outer cases. I examined the combs for brood and eggs before inverting, and four days after found eggs hatched out and brood going on all right. I have sent one of my frames to you. W. Soar might call on you and see it.—DEVONSHIRE DUMPLING.

PHYSIOLOGICAL QUERIES, ETC. [824.]

[842.] 'Devonshire Dumpling' appears unable to see with his own eyes, as I have never said, 'I am making a hive like the Jones-Heddon.' One may well express astonishment at 'D.D.'s' advice repeated to cottagers, to try the invertible hives. To such bee-keepers I see no single point that can be recommended. Why, even its inventor has sent out a disclaimer of its supposed advantages (see 814), heralded into the world with a great flourish two seasons back: and thus it appears it is being rapidly modified out of existence in the land of its birth. No, 'D. D.', my definition of a suitable hive for cottage bee-keepers would be very far removed from such an expensive, purely experimental, and confessedly *untried system*—as far as this country is concerned—as the invertible plan.

There are others asking for particulars of 'D. D.'s' experience in inverting; and to say that the facts given bearing on this question are meagre is putting it too favourably—it amounts to *nil*. But instead, like a drowning man catching at a straw, 'D. D.' wants to know if 'I have had experience.' The question is quite unnecessary, as I started the discussion with an implied admission of having no experience, and I venture to say that not one bee-keeper in a hundred knows anything about the matter from experience.

Where do we get our facts from? Why, Mr. Heddon himself has been honest enough to admit (and all will respect him the more) that, with one exception, the conclusions he arrived at in 1885 are erroneous, and this exception of inverting once only (brood-combs alone) to secure the complete filling of the frames is more than likely to be accomplished without the necessity of inverting at all.—JAMES LEE, *Feb.* 19.

THE NEW APIFUGE.

[843.] A few weeks ago I gave you a somewhat prosy statement of my views on a new compound, calculated to conciliate

'Our dear little friends, with the nimble tails,'

and I should not have troubled the fraternity further on the subject, had I not then stated that I was in treaty with a manufacturing chemist for its production, and that I would continue my experiments of last year (stopped, of course, by winter), as to its efficacy, at the same time promising to report results.

I have now the highest pleasure in informing you that, after a slow and tedious process, success has been reached to a degree far beyond even my hope. I have, however, had to modify and alter my formula considerably, in order to make the apifuge a complete success. On Saturday last, I manipulated two hives, at 70° in the sun, and noticed this peculiarity about the bees on the approach of my hands:—They seemed charmed, and subsided amongst the frames, as boiling water subsides on the introduction of a spoon. A twelve-year old youth moved his fingers in the porch, to force the bees to crawl in and out through them during a vigorous cleansing flight; there was not a *soupçon* of a sting. I may say that another substance recommended for the same purpose as mine is so difficult to obtain in a pure state, and therefore of a sufficient strength to be useful, that I concentrated my attention on the production of a compound of such an exact undiluted strength that it can be taken into, and used in the apiary, with as much, and more confidence, than the best gloves. I needn't say that it is the *exact dose* in medicine which is beneficial. So with the apifuge. As I could not distribute it adequately, I have placed the sole agency in the hands of Abbott Bros., Southall.—R. A. H. GRIMSHAW, *Cray Hill, Horsforth, near Leeds.*

BEE-CONCILIATORS.

[844.] I am surprised that no one has protested against the use of apif—oh! I forgot, I must not use that awful word: Mr. Abbott says it is 'Copyright' and Mr. Grimshaw tells me it is 'Registered,' so there is no knowing what pains and penalties are involved in the use of it—say 'anti-sting.' There is nothing which so impresses the spectators at a show as the unconcern with which the manipulators and the judges and others within the vail stand surrounded by bees and without getting stung. A common remark is that they must use something repugnant to bees. Hitherto this insinuation could be repelled, and the reply truly made that nothing was required but coolness and care. Alas! in future, when the subtle and peculiar odour of methyl salicylate pervades the tent, the soft impeachment can no longer be denied, and the charm attending the cool, careful manipulation of an expert will be gone. I well remember my first visit to Mr. Abbott in his little garden at Hanwell, where I, a perfect novice, stood quite unprotected while he opened hive after hive, lifted out frames, and, to my great delight, allowed me to do the same. There is nothing which tends to promote neat and careful handling of bees so much as the absence of protection and the full knowledge that carelessness and jarring will at once bring their punishment, and on the contrary, the use of anything which gives the operator a feeling that however careless he may be he cannot suffer for it, can only lead to a slovenly, slap-dash method. If the use of substances to prevent stings should come into general use the effect upon the rising generation of bee-keepers can but be to render them very unworthy successors of the present skilful manipulators.—F. LYON.

NOTICES TO CORRESPONDENTS & INQUIRERS.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

FAR NORTH.—1. *Enamel cloth.*—Glazed side next the bees. 2. *Uncapping.*—Uncap a few cells of honey, occasionally, above the cluster of bees, or near to it. This may be done without removing the frames by using a little smoke or carbolic acid solution. If the outer combs contain granulated honey it is best to remove them, and to feed on syrup, otherwise let them remain. Uncapping, as advised above, is sufficiently stimulating without giving syrup.

RECTOR.—1. *Late Autumn Plants.*—Batches of bee-flowers, such as borage, mignonette, phacelia, the sunflower tribes, and others, may be sown late in the season to produce autumnal blooms, but no appreciable amount of honey is ever obtained from garden plants, except in market-gardening and flower-seed-growing districts. Second crops of red clover and crops of buckwheat are amongst the best for yielding honey towards autumn. Candytuft, stocks, and sweet peas, sown late, will also yield autumn bloom. 2. *Feeding with Salicylic Acid.*—Salicylic acid, when mixed with dry sugar, would not be taken by the bees. The only plan of administering it effectually is either in syrup or by fumigation.

T. NIXON.—1. *Tar for Hives.*—Six pints of gas-tar, one pint Stockholm-tar, and one pint of spirit of turpentine, form a good varnish for outdoor work. The tar should be heated and well mixed, and the turpentine added when cooling. A good recipe also is the following:—One gallon of gas-tar, one ounce of nitric acid, half pint of spirit of turpentine. The acid to be mixed in gradually. This composition, which dries quickly and sets very hard, should be well brushed on, after the manner of paint, and not too thickly, and it will not melt or become sticky with the summer heat. 2. *Placing a small above a larger Hive.*—By the plan you propose you would find great difficulty in removing the upper hive when filled, since brace combs would be built between the two hives. A much better plan is to put the large hive below the small one—covering up with strips of carpet and boards any parts which project beyond the upper and smaller hive—and to allow the bees to work down into it. Fill the frames of the lower hive with foundation, which will greatly expedite matters. No board is required between the two hives.

H. W. D.—1. *Members of County Associations.*—Members of County Associations are entitled and invited to attend the quarterly and annual meetings of the B. B. K. A., but have not the right of voting; neither have their elected representatives this right. A subscription of five shillings per annum constitutes membership, and confers the right of voting on any question brought before the above-named meetings, and also gives one vote for each member at the annual election of the Committee of the Association. 2. *Separators.*—Tin separators are in common use between sections. The tin used should be as thin and light as possible. Many advanced bee-keepers advocate thin wood separators. Either kind may be perforated as desired. 3. *Preventing Queen entering upper Boxes.*—In tiering up, whether for extracting or for obtaining comb-honey, we never use excluder-zinc. By keeping the brood-chamber sufficiently large and free from storage of honey, and by giving room beneath it, in the form of 'ckes' or shallow chambers, with sufficient bottom ventilation, the queen, as a rule, may be prevented from entering the upper boxes and from leading off swarms. 4. *Stocking an Observatory Hive.*—A small swarm will be required for an observatory hive of four frames. We should prefer nice, straight, newly-built combs to giving foundation, but either may be used. Shake the bees on a sheet in front of the wedged-up hive and allow them to enter at the bottom. If it is simply a case of transferring, remove the bees, with their queen, combs, and brood from the ordinary to the observatory hive.

HONEY DROP.—The dust of lump sugar will make useful syrup; it is desirable that it should be as free from dirt as possible.

JOHN BULL.—*Gloves.*—Be a true 'John Bull,' and do without them. They are great hindrances to manipulation, and when once stung they retain the smell of the poison, and invite further attacks. The best gloves are the two pairs of fine cotton texture, well wetted with water. The Rev. W. E. Burkitt could supply you with the special information you require; the gloves mentioned by him were leather gloves, manufactured by a dealer in High Street, Andover. Some gloves have recently been imported from the Continent made of American cloth; but they look clumsy, and would be found awkward and troublesome in working with them. Now that Grimshaw's Apifuge and Lyon's Sting-Preventer are before the public, we should be pleased to have some independent opinion of their value.

H. P.—1. *Dry Sugar Feeding.*—Mr. Simmins recommends for this purpose Porto Rico sugar: that you have forwarded is a sample of sugar called 'pieces.' If presented to the bees they will utilise it, but you cannot expect that the result will be so beneficial as the using of that which the experience of practical bee-keepers has found most serviceable. 2. *Fertile Worker.*—There can be no doubt of the presence of a fertile worker in your hive; and in due time we shall be pleased to receive the results of your experiments as to the full development of the drones so produced.

BEE-OLOGIST.—*British Wild Bees.*—*Monographia Apum Angliæ*, by W. Kirby; *British Bees*, by Lieut. Shuckard, with illustrations; *Apidæ—Bees*, by F. Smith, Brit. Mus. The above books are out of print, but may occasionally be found on book-stalls. The most exhaustive and complete work on wild bees is *Apidæ Europæa*. This is being published in parts at the present time; as a book of reference it is invaluable, and the excellent illustrations it contains are a great help in determining species. This work comes out quarterly, and the annual subscription is fourteen marks.

R. YOUNG.—*Scotch Hive Manufacturers.*—We have no doubt that there are in the north of Scotland numerous dealers in bee-appliances; but though very desirous of giving all possible and all proper information to our readers, we consider that it is more the duty of bee-keepers in that part of the kingdom to advertise their wares in our *Journal*, than that our *Journal* should advertise them. The *Journal* has a large and an increasing circulation in Scotland, and we suggest that purveyors of appliances in that part would find it to their advantage and profit to make use of our *Journal* towards the development of their business.

WELSH NOVICE.—Directly you commence to increase your stocks you reduce your yield of honey. If we could absolutely have the entire control of their swarming, we should—in order to get the greatest yield of honey—prevent such entirely, but this, up to the present, being an impossibility, we should manipulate our stocks that from those who show the greatest swarming proclivities, make our artificial swarms, and rear the queens from those who have the best storing qualities, not forgetting to rear the drones also from such stocks. You will usually find these two latter qualities go hand in hand.

TAFFY.—1. *Soft Warm Candy.*—This is simply candy, made either by boiling and stirring while cooling or by kneading finely ground sugar in honey to the consistence of dough, warmed to about 80° before giving it to the bees. 2. *Enamel Cloth* is that used for chair-covers but without the imitation leather grain upon it. 3. *Bees in Confinement.*—Having kept your bees confined by perforated zinc and fed (?) them with syrup during the winter, the wonder is, not that four lots are dead but that the other four are alive. Release the others at once and give them soft candy if they require food. 4. *Location of hives.*—You had better replace them on their stands as last year. Another winter leave them alone instead of moving them into a shed. 5. *Erica vulgaris.*

J. G.—It is always a very delicate matter to interfere with the decisions of judges. These judges are not appointed to their arduous and often thankless position without much anxious thought. It would appear from your statement, and the subsequent act of the Committee, that in the instance mentioned the judge might have erred; but before saying that he had so done it would be just on our part to remember the advice, *Audi alteram partem*.

H. C.—1. *Dust thrown out by the bees.*—The sample you send is simply the cappings removed from sealed honey in order to get at the contents of the cells, just as one throws away the cover of a pot of preserves. 2. *Bee-tent at Horticultural Show.*—You had better write to the Hon. Secretaries of the counties named, and arrange for the tent to be sent to your local show.

C. Fox.—Whether you can make bee-keeping pay depends in a great measure upon yourself and the locality in which you are situated. You must not expect, if you purchase a few hives and give them no further attention, that you will make a living. We should advise you to get one or two hives only to begin with, and when you are able to manage them properly to go in for more. In this way you may be better able to judge whether you are fitted to undertake bee-keeping on a large scale. The Heddon hive is not suited to this climate, and if you wish to use it, you must have an outer covering for winter. We advise you not to go in largely for these hives until we have had some reports of their success in England. A simple hive with Standard frames is all you need for storifying. We did not find the shallow frames a success for this purpose. If you will say what other questions you wish answered, we shall be pleased to give you all the help we can.

Received from Mr. Alfred Rusbridge, The Apiary, Sidlesham, Chichester, for the library of the British Bee-keepers' Association a copy of the *Tidsskrift for Biavl*, or the Danish Bee Journal for the year 1886. It contains a translation of Mr. Rusbridge's book on bee-keeping. In comparing the translation with the original many words appear very similar in sound, although the characters differ. H. R. H. the Princess of Wales has been pleased to accept a copy of both. In the *Tidsskrift* we notice a description of Mr. Cowan's hive with illustrations, articles on bumping, and translations from the *British Bee Journal*.

Show Announcements.

Giving Name and Address of Secretary, Date and Place of Show, Date of Closing Entries. Terms: Three Insertions and under, Two Shillings and Sixpence; additional insertions, Sixpence each. No charge made to those Associations whose Shows are announced in our general Advertising Columns.

July 11–15.—Royal Agricultural Show at Newcastle-on-Tyne. Entries close May 12. J. Huckle, Kings Langley.

August 3–5.—Yorkshire Agricultural Society at York, Secretary, H. L. Rickards, Poole, near Leeds.

Business Directory.

For the use of Manufacturers and Purchasers of Bee-keeping Appliances.

The Name and Address and Business of any Manufacturer will be inserted in this List, under one heading, for One Pound per annum. Additional headings, Five Shillings extra. Advertisers in 'The Bee Journal,' whose orders amount to Five Pounds per annum, will be inserted Free.

HIVES AND OTHER APPLIANCES.

Abbott Bros., Southall, London.
Appleton, H. M., 256A Hotwell Road, Bristol.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
Burtt, E. J., Stroud Road, Gloucester.
Edey & Son, St. Neots.
Howard, J. H., Holme, Peterborough.
Hutchings, A. F., St. Mary Cray, Kent.
Meadham, M., Huntington, Hereford.
Meadows, W. P., Syston, Leicester.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
Stothard, G., Welwyn, Herts.
The British Bee-keepers' Stores, 23 Cornhill, E.C.
Walton, E. C., Muskham, Newark.
Webster, W. B., Wokingham.
Wren & Son, 139 High Street, Lowestoft.

HONEY MERCHANTS.

Abbott Bros., Southall, London.
Baldwin, S. J., Bromley, Kent.
British Honey Co., Limited, 17 King William St., Strand.
Country Honey Supply, 23 Cornhill, E.C.
Howard, J. H., Holme, Peterborough.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
Walton, E. C., Muskham, Newark.

FOREIGN BEES AND QUEENS.

Abbott Bros., Southall, London.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
Benton, F., Munich, Germany.
Howard, J. H., Holme, Peterborough.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
Simmins, S., Rottingdean, near Brighton.
Walton, E. C., Muskham, Newark.

METAL ENDS.

Abbott Bros., Southall, London.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
Lyon, F., 94 Harleyford Road, London, S.E.
Meadows, W. P., Syston, Leicester.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
Walton, E. C., Muskham, Newark.

COMB FOUNDATION.

Abbott Bros., Southall, London.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
Howard, J. H., Holme, Peterborough.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
Stothard, G., Welwyn, Herts.

ITALIAN BEES of the BROS. CIPPÀ,

BEE-KEEPERS,

BELLINZONA (Suisse Italien).

Successors of the old-established Bee Business of the late Professor A. MONA.

SEASON.	A Fertilised Queen with a Cluster of Bees.	Swarm of ½ kilogram.	Swarm of 1 kilogram.	Swarm of 1½ kilogram
	Francs.	Francs.	Francs.	
March and April	8	16.50	24	
1 to 15 May ...	7.50	15	22	
16 ,, 31 ,, ...	7.50	14	20.50	
1 ,, 15 June ...	7	13	19	
16 ,, 30 ,, ...	6.50	12	17.50	
1 ,, 15 July ...	6	11	16	
16 ,, 31 ,, ...	5.50	10	14.50	
1 ,, 15 Aug. ..	5	9.50	13.50	
16 ,, 31 ,, ...	5	9	12.50	
1 ,, 15 Sept. ..	4.50	8.50	11.50	Francs.
16 ,, 30 ,, ...	4	8	10.50	13
1 ,, 15 Oct. ..	4	8	10.50	13
16 ,, 31 ,, ...	4	8	11	14

Carriage not paid. A Queen arriving dead, if returned at once, will be replaced without charge. Terms, Cash. Be particular to give the exact Address and Name of the Station. Queens reared by selection. Five per cent discount on an order for 10 Queens or Colonies at a time; 10 per cent if 20 Queens are ordered; 15 per cent on 50; and 20 per cent on 100 Queens or Colonies ordered at one time. Write, if possible, in French or German. We have been acknowledged as the sole successors of the late A. Mona by the official Federal Gazette. See notice in *British Bee Journal* (page 424 of 9th Sept. 1886).

A 2393—(164)

MANIPULATE WITHOUT SMOKE!

WEBSTER'S FUMIGATOR

Entirely supersedes the Smoker, both in Simplicity and Effectiveness. No 'going out.' No tainting or soiling of combs. Always ready for use without any preparation. Can be carried in the pocket.

With Bellows, 4s. 6d.; postage, 4½d.

Without Bellows, 3s.; postage, 3d.

Can be adjusted to any ordinary smoker bellows.

6 oz. Bottles of Agent—carbolic acid, oil of tar, and water, properly mixed—6d. each.

WEBSTER'S SWIVEL FRAME-LIFTER

WILL BE READY SHORTLY.

With this appliance, frames can be removed from hive, replaced and examined on both sides without inverting, with one hand, leaving the other free for manipulating, at the same time preventing soiling the hands with propolis.

W. B. WEBSTER,

SOLE MANUFACTURER AND INVENTOR,

WOKINGHAM, BERKS.

AWARDS FOR FUMIGATORS LAST SEASON.

1st Prize Silver Medal, Royal Counties' Agricultural Show.
Highest Award, Colonial and Indian Exhibition, London.
2nd Prize Bronze Medal, Colonial and Indian Exhibition, London.
2nd Prize Altrincham, Lancashire and Cheshire B. K. A.

LYON'S Patent METAL ENDS.

THE only perfect pattern. The metal being flush with the inside of the Hive side, CANNOT BE FIXED TO IT BY PROPOLIS. All the so-called Improvements CAN.

The Special Alloy used allows them to be LIGHT YET STRONG. One gross weighs 5¼ lbs.

Price for 1887 **5/6** per gross.

DR. PINE'S VEILS.

Prize Medal, 1879, for the best Bee Dress, The only Medal ever awarded to a Veil, **2/2** each, post free. Every genuine Veil bears the Registered Trade Mark.

DR. PINE'S LOTION.

The ONLY CURE for Stings, **1/8** per bottle, post free.

CHESHIRE CURE.

Guaranteed, with Directions, **1/2** per bottle, post free.

Methyl Salicylate, or 'Sting Preventer.'

1 oz. bottle, post free, **1/8.**

HIVE MAKERS supplied with SPRINGS, GLASSES for Sections, PHENOL, METHYL SALICYLATE, in bulk, &c., &c., at lowest prices.

F. LYON, 94 Harleyford Rd., London, S.E.

TO DEALERS.

SEND to A. F. HUTCHINGS for quotations of AMERICAN WHITE BASSWOOD ONE-PIECE SECTIONS of the finest manufacture and quality, 300,000 will shortly be on hand. Special terms for all Orders before March 25. Don't fail to get my prices before you Order elsewhere! Address, West Kent Steam Power Hive Works, St. Mary Cray, Kent.

THE WINDSOR BEE-KEEPER'S

Choice Selected Collection of

SEEDS OF FLOWERS

SOUGHT AFTER BY BEES. Free by post, 2/6.

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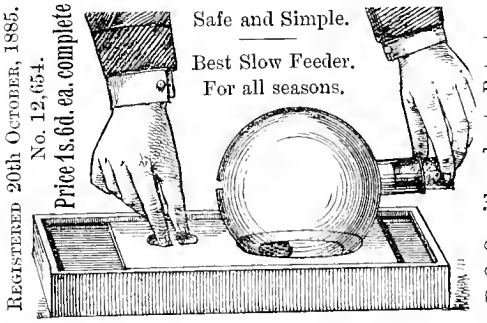
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THE
BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, St. Martin's Lane, W.C.'

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Editorial, Notices, &c.

SUGGESTIONS FOR SCHEDULES.

The time is drawing near when the committees of the various Associations will be taking into consideration the task of drawing up their various schedules for the regulation of their annual shows, and it may not be considered inopportune to throw out a few suggestions or hints which may be of some assistance to them in this duty. Bee-keeping cannot now be considered to be in its infancy; it has been developing in experience for some years; the lessons of the past should not be lost upon us, and we are all desirous that our apicultural system should be approximating the goal of perfection. Admittedly there are still before us many debateable points. We are not all in agreement respecting the highest points in judging either hives or honey. In time these differences may possibly be adjusted, and these points solved. It would be an advance in that direction if, as suggested at the last annual meeting, the Committee of the B.B.K.A. could see their way to draw up some simple rules for judging, which from such a quarter would be sure to find acceptance with the several affiliated Associations.

During the past year discussions have arisen in our *Journal* which have proved of the greatest utility, and viewing these with an editorial eye, it may be allowable while the committee of the B.B.K.A. are pondering over the above matter to throw out a few hints *pro bono publico*.

The little *contretemps* at the Indian and Colonial Exhibition was not without its benefits. The county competition was an experiment which in its results more than surpassed the most sanguine expectations of its promoters. It was difficult—it having been a first endeavour—to know how the scheme would work, and therefore it cannot be wondered at that all was not right, that the judges' work was not the acme of perfection. It has simply shown us, as might have been anticipated, that on a future occasion a few slight alterations will be necessary in the details to render such an exhibition more complete.

Turning to the last annual meeting, Mr. Burkitt's resolution will have its results. We feel sure that gentleman had no desire to throw more work on the officers of Associations; he may have had in his mind's eye cases which have come under his own notice, where there has been a long list of rules, and the judges have received copies just as they were beginning their arduous duties, without time being allowed to grasp some of the more minute details. To overcome this difficulty, let us suggest that it would be wise if secretaries were to forward to the judges a copy of the rules a few days prior to the show, so that they could make themselves thoughtfully and thoroughly acquainted with them.

Another point which occurs to us relates to judges. Rules for judging, suggestions for judges, &c., are all very well in their way; but, after all, it is able and experienced men that are required,—men who know their subject, and are well up in it,—men who are known to give their judgment to the best of their ability,—men in whose verdict all will be ready to acquiesce. Of late the cry has been—loud and urgent—that the B. B. K. A. should frame rules for judging, so that any one may undertake the duties of a judge. But unless such judges were able to give a reason for the decisions they may arrive at, there would still be much dissatisfaction. The result of a show is not merely for the present, it influences the direction of the work of the bee-keepers for the future season, therefore much necessarily depends on the confidence that can be placed in the opinions of the judge. We would say to the various associations, Follow the example of other societies, and obtain judges well qualified for their work.

Another suggestion, and we have done for the present. Offer, in future, medals for the encouragement of the production of wax and the use of honey in various forms. Comestibles of all kinds with honey as an ingredient are now numerous, we are glad to say. Honey in medicine is regaining its proper footing, and honey is being utilised in many other ways; and now, when considering what to do with our increased productions of honey, we would desire especially to direct the attention of committees to this matter. Don't forget to encourage all the utilities for honey; offer prizes for honey comestibles, honey medicines, and have a separate class which will cover anything worthy of commendation in which the products of the apiary are employed. By such encouragement fresh channels will be opened, larger quantities of honey will be disposed of; and need we say prices will improve, and bee-keeping considered one of the most profitable of industries?

ASSOCIATIONS.

GLOUCESTERSHIRE BEE-KEEPERS' ASSOCIATION.

This Association held its Annual Meeting on Thursday, February 24th, at Gloucester. Report was read showing increase of members, &c. Financial statement closed with a working balance in hands of treasurer. Permission was given for the formation of a Bristol district association under their enterprising local secretary, Mr. Appleton, which it is hoped will much assist in the better working of that portion of the county. Received with regret the resignation of the Hon. Secretary, the Rev. John Turner, Mr. Slade, of 12 Promenade Villas, Cheltenham, being appointed Hon. Secretary.

IRISH BEE-KEEPERS' ASSOCIATION.

The Annual General Meeting of the above Association was held on Thursday, February 24, at 2 p.m., in Dr. Traill's Class-room, 35 Trinity College, H. Chenevix, Esq., J.P., in the chair. Present—Miss E. E. Rutherford, Miss Violet Knight, Dr. J. Purser Allen, Messrs. J. M. Gillies, J. Edmondson (treasurer), C. F. Knight, J. K. Milner, Walter J. Stanford (hon. secretary), and M. H. Read.

The following is an abstract of the report adopted:—

'The heavy debt of 30*l.* carried into last year's accounts from 1885 has, owing to the great liberality of a few gentlemen, been cleared off. The Committee made arrangements to send an exhibit of Irish honey to the British Bee-keepers' Show at South Kensington. Only four members, however, availed themselves of the facilities offered, owing to the extraordinary lateness of the season; and three exhibits of 1-lb. sections, and two of 1-lb. bottles, were delivered at the show from Ireland, and with these five exhibits one second prize and two highly commended in a class of forty-two entries, and one highly commended in a class of thirty-eight, were secured; honours equivalent to 80 per cent of the Irish exhibit. The only appearances of the bee tent this year were at Dunadry, co. Antrim, on July 26th, and at the Giant's Causeway, Portrush, on July 27th. After much difficulty a honey market was at last started in Dublin for members of the Association in August. The committee were fortunate in securing the services of Messrs. Carton Brothers, 17 Halston Street, as agents, to whose untiring energies the success of the scheme is largely due. Fourteen different members sent up honey amounting to 1228 lbs., for which a total of 50*l.* 9*s.* 10*d.* was realised, or an average of 9·86*d.* per lb. Two conversaziones were held during the year, in June and November, which were well attended. Several interesting and instructive papers were read, and various other subjects of apiarian interest were freely discussed and appliances exhibited. The list of members now numbers eighty-three, of whom six are life members, and seventy-seven annual, as against three life members and 106 annual in 1884, and four life members and sixty-three annual in 1885. It will be seen, therefore, that though there was a very heavy fall in 1884-1885, we are again on the rise slowly, having added sixteen to our total since last year, with twenty-eight new subscribers. Several new names have already been received for 1887. They also desire to bring under your notice that this past year the Government have for the first time included apiculture in their annual agricultural returns, thereby proving how important a part of the industry of the country it is considered. Ireland having taken the lead in this important matter it is much to be hoped that England and Scotland will very soon follow her example.'

The financial statement shows that the income from annual subscriptions for 1886 amounted to 23*l.* 11*s.* 6*d.*, as against only 17*l.* 9*s.* 6*d.* for the year 1885. Besides this there were special donations towards paying off the outstanding accounts of the Association amounting to 19*l.* 10*s.* and also 3*l.* 18*s.* 6*d.* from sundry sources, making a grand total of 47*l.* 9*s.* Of this 12*l.* 5*s.* 11*d.* was expended to meet the current expenses of the year, and 30*l.* 0*s.* 3*d.* to pay off the Association's debts, leaving a balance in the treasurer's hands of 5*l.* 2*s.* 10*d.*

The following were elected to serve as officers for the ensuing year:—President, the Lord Ardilaun; Vice-presidents, the Rev. R. Bellew, W. J. Bramly, Esq., the Rev. Canon Proctor; hon. treasurer, J. Edmondson, Esq.; hon. secretary, H. Chenevix, Esq., J.P.

A vote of thanks was accorded to Mr. Stanford for his services as hon. secretary during the past year, which was duly acknowledged by that gentleman.

The committee for 1887 are,—the Rev. P. Kavanagh, Messrs. Walter J. Stanford, J. K. Millner, Dr. Traill, Messrs. M. H. Read, J. M. Gillies, C. F. Knight, R. Sproule, Dr. Allen, Dr. O'Farrell, J. S. B. Vanston, the Rev. T. Lindsay, Edward Byrne, J.P., John Jones, M.D., S. K. Twigg.

It was moved by Dr. Knight that steps be taken by the incoming committee to place the Association on a more representative basis by conferring powers on district branches to nominate a member or members for election on the general committee and by indicating clearly on the voting papers that such members had been so nominated. This was seconded by Mr. Gillies and passed.

It was moved by Dr. Knight that District Associations be formed throughout Ireland.

Mr. Stanford objected to District Associations being formed at all at present on the grounds that the Irish Bee-keepers' Association itself was not strong enough to subdivide into smaller associations. He suggested that the matter should be allowed to drop for another year. Mr. Read said that local secretaries would meet the requirements of Irish bee-keepers at present. Mr. Chenevix was of the same opinion. After some discussion, therefore, the motion was withdrawn.

It was moved by Dr. Knight that steps be taken by the incoming committee to carry out the plan of the Cottiers' Fund. This should be done by some few members each sending a name of a suitable cottager in their neighbourhood for approval to the committee, who should select one or more of these names and supply them as funds permitted with the appliances necessary to start bee-keeping. The members who nominated the chosen ones to become responsible for repayment in easy instalments for the appliances furnished. This was seconded by Mr. Stanford and passed.

The meeting adjourned with a vote of thanks to the Chairman.

Weight of full Bars of Comb before Slinging and after. (Standard size.)—I thought it might interest some readers of the *Bee Journal* to know this. Last year I weighed one box of ten bars, the top storey of a hive:—

Full. lbs.	ozs.	Empty. lbs.	ozs.
4	2	1	4
5	5	1	3
5	4	1	4
6	0	1	8
5	3	1	2
6	9	1	4
5	12	1	5
5	1	1	2
5	12	1	2
5	3	1	2
54	3	12	4

J. W. L.

'Gloves.'—*A Suggestion.*—Cut off the finger-ends of the gloves, if not quite prepared to manipulate without some protection, then if desirous of making doubly sure of being unharmed, a very small application of Grimshaw's 'Apifuge' ought to suffice.—C. A. J.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Upper St. Martin's Lane, London, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *King's Langley, Herts (see 2nd page of Advertisements).*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

THE NEW RACES AND THE BEST MEANS OF INTER-BREEDING AND SECURING FERTILISATION.

CYPRIANS.

[845.] The recent statements of Mr. F. Benton in reference to these bees will have interested many: but I do not see why he should fear that others may say he is actuated by interested motives. We all know that his motives are honourable, and if there is one man more capable than any other of forming a correct opinion of these bees it is himself. I believe that, as a rule, bee-dealers, as well as manufacturers, recommend an article because they honestly believe it to be of value, and I would ask, Who is there better able to judge correctly than those who provide for the many? I know that there are others who hold their peace, fearing they will be considered 'interested': but, friends, if your opinion is worth anything at all, by all means let us have it. The majority will believe in your sincerity. Time proves all things, and truth will prevail.

I am afraid Mr. Benton has not had the recompense he deserves for all the trouble and expense he has been at in bringing the new races more prominently before the public, and placing Cyprians in particular more within reach of those who can afford to pay for them. The price has been high—too high to enable bee-keepers generally to adopt them; but I feel certain, could he but see his way clear to make a considerable reduction from his charges, the demand would be so much greater as to fully repay him.

The reports regarding the temper of Cyprians have been so conflicting it cannot be wondered at that so much uncertainty exists in regard to them. The bad opinion, as expressed by some, results from one of two causes; either through careless handling, or the bee-keeper has hybrids, which he persists in calling 'Cyprians.' If we speak of Cyprians, once and for all, let it be understood that we mean what we say. Cyprians are not hybrids, and hybrids are not pure Cyprians. This seems plain enough, but, strange to say, a well-known writer in another journal speaks of the doings of his *Cyprians:* but he tells us they are descended from a queen he had *ten years since.* I wonder how much Cyprian blood there is in those bees at this day? I have no doubt his bees were benefited by the introduction of Cyprian blood at that time, and I am certain are the better for it now, but why call them 'Cyprians,' after being crossed and re-crossed as hybrids through several generations? Again, a noted Scotch bee-keeper has strongly condemned 'Cyprians,' though at the same time showing good results from them; but in private conversation he has informed me that he had *never* been stung by the *pure* bees, but the hybrids were hard to deal with.

The Rev. G. Raynor has had a lengthened experience with these bees, and continues to speak well of them; but I believe he has had some trouble with dysentery. It would be interesting, therefore, if that veteran bee-keeper could give us a little information as to the hive he uses for wintering; and how the frames, &c., are arranged.

We have heard of the grand results gained by that practical bee-keeper, Mr. Cowan, from his Cyprian (?) stocks. Now, I may be mistaken, but I have reason to believe that in his apiary it would have been the exception rather than the rule to find *pure* Cyprians; and if the Editor will kindly put us right, upon this point, it will be satisfactory to all, and particularly to myself, as I do want to get at the bottom of the whole question. Let us know only what are being called Cyprians, and what not; then we can clear away this mist overhanging that remarkable race.

Mr. Blow, of Welwyn, after all the trouble and expense he was put to in bringing over many stocks, condemns them utterly. Though on one occasion it will be remembered he had to flee from the enraged bees without obtaining what he had bargained for, he says he had no difficulty in managing them abroad; but arrived here he could do nothing with them. His experience simply shows that it does not do to buy stocks indiscriminately. What is wanted is an established and permanent modern apiary in Cyprus, where year after year the disposition of the respective colonies may be tested, and breeding be carried on only from the most docile, of course having regard to working qualities as well. Another of our well-known bee-keepers has long since given Cyprians a bad name, but I am aware that hybrids resulting from indiscriminate mating had something to do with his verdict. It is within my knowledge that the same gentleman, not more than a year since, bought many stocks from an apiary where only hybrid Cyprians are kept, and in hives with frames so propolised that the average bee-keeper would hesitate before attempting to remove one. I had some of the same, and all were transferred to new frames, while with one or two exceptions they were as peaceable as Ligurians. Those that did sting were no worse than a Ligurian hybrid stock, from which I removed the queen because of their vicious nature.

I have had many pure Cyprians, and not one stock but what could be handled without smoke at any time of the day, dull days or fine days, in season or out of season, without receiving a single sting. They rest more quietly upon the combs under manipulation than any other bees I have seen: they are the best of honey-gatherers, exceedingly prolific, and under proper management give no trouble in swarming, while not the least of their good recommendations is their extreme beauty. Upon examining a hive of these bees, proceed as follows:—

1. Peel the quilt back with a firm but careful motion, using no intimidant.
2. Wait a few seconds.
3. Make no hasty movement.
4. As with other bees, remove combs carefully.
5. In shaking them from the combs, as with any others, I *never* give a thorough shake to begin with. Give one or two gentle jerks, and *then* be as rough as you please.

Mr. Cheshire, than whom there is no more observant bee-keeper, will surely be credited. He considers that Cyprians are most amiable, judging from his own stocks, and having also examined those at my Rottingdean apiary under varying conditions.

I have had Cyprians storing honey and breeding when Ligurians and common bees would be doing nothing: in fact, there never appears to be a time during the season when they cannot get a living. G. M. Doolittle, a well-known American writer, speaks well of their working qualities, and says what is quite true, that, unlike common bees, one may stand for hours by the

hive, and not one bee will attempt to sting. Unfortunately, his experience has been with one colony only, and, whether through wrong treatment or not, I cannot say, he condemns them as quite unmanageable.

Mr. Heddon, another prominent apiarist in the States, condemns them without trial, and draws some very erroneous conclusions from the statements of others, who have had but one or two queens; and it is even open to doubt whether such were pure.

Perhaps the worst failing Cyprians have is that they use a great deal of propolis, often of a very dark colour. Their cappings are thin, and lie close upon the honey, giving the same a dark, damp appearance, and therefore they are in both respects quite unsuitable for section work. They are also almost certain to start fertile workers, if by any means the queen is removed; but this appears to be no trouble, as such subside immediaely upon the introduction of another laying queen, while there is no attempt to molest her.

It has been stated that they breed too late in the season, using up all their stores, and also that they winter badly: but this is entirely a fault of those making such statements. I have long since been told that Ligurians also disposed of their stores in like manner, but if the apiarist persists in giving them a small daily supply during the autumn, of course brood-rearing will be continued. Give them the whole of their winter stores, or the quantity necessary to complete such, in the course of two or three days, at the end of August, if you like, but never later than the latter part of September. Never mind if some brood is thrown out to accommodate it, so that every comb is almost solid with sealed food: then leave them alone; and I have yet to see the stock so treated which did not soon cease breeding entirely, finding nothing more was to be had.

With the more prolific races it does not do to commence slow feeding, even as early as the last of August, when a colony does not appear to have quite enough store to carry it through, as all will simply be wasted, and the strength of the stock as well. Let no one say I am wrong in advising the destruction of the brood in such cases. I have seen it done by the bees on their own account when storing naturally late in the season, sometimes as early as the middle of August, and nothing would induce such colonies to breed again until after the 'turn of days,' though headed by young and prolific queens, and in the following year giving a good account of themselves.

Now, how about dysentery, or bad wintering qualities? Strange as it may appear to some of your readers, I have always found this more prevalent with double-walled hives, and where the frames run across the entrance. But too often there is hardly sufficient space for a bee to crawl under the frames; bees die and drop to the floor-board, get into a mass, and block up such a shallow space. A warm day comes, and the bees have all they can do to find the entrance, while many wander about in an excited state, soon to drop among the heap upon the floor, daubed by their own excrement and that of others, which should and would, under proper conditions, have been voided while upon the wing. The living do not, because they cannot, remove such a mass of corruption, which is being rapidly added to, because of insufficient ventilation and the foulness of the hive. The stronger the colony thus situated, the more certain and rapid is its destruction, unless the evil be remedied at an early stage. Hence we see why the more prolific races, being in larger numbers during winter, suffer from dysentery when improperly hived.

The too-small space under the frames is the rule, rather than the exception. I have on many occasions drawn attention to this matter, and have given a full half-inch as the space to allow when hives are first made, though in winter several inches would be better. The more room given there, the cleaner will be the floor; better ventilation will be secured, and the health of the bees maintained in consequence, more particularly if the frames stand 'end on' to the entrance, facing the mid-day sun. Do this as I have done, and you will have no more complaints to give about the wintering qualities of Cyprians.

The beginner should on no account obtain Cyprians, as he is sure to get a mixed race which will give him trouble; but the man of average experience, who can in a measure direct the breeding department, will find the introduction of these bees of immense value, making his stock more substantial, and causing his returns to be more certain; as a cross with this race gives that equal and general good condition of stocks, hitherto found wanting in every apiary, large or small.

In future papers we will talk about those hybrids, and how to get in them all the good qualities of the Cyprians, without their faults, and without that stinging propensity characteristic of hybrids as generally known, and which, through careless observation or heedless expressions, have often been the cause of giving pure Cyprians a bad name.—S. Simmins.

[For two years we had twelve pure Cyprian stocks from imported queens purchased of reliable dealers, and should have had no difficulty in keeping the race pure to this day had we wished to do so. Of these queens we destroyed several the first season, because they did not satisfy us, and did not come up to our Italians, and these we replaced by others, some imported and some bred at home from selected stocks. From our experience of home-bred queens, we believe in them, and also that any one taking the trouble can secure pure fertilisation if he wishes. When we speak of Cyprians we also mean the pure race, and for two years pure Cyprians with us were the rule and not the exception. Our correspondent has had, we believe, considerable experience with these bees, therefore we are glad to find he does not differ from us as to their not being suitable for beginners; but we do differ from him most distinctly as to the reason. Why is a beginner sure to get a mixed race which will give him trouble? Does Mr. Simmins wish us to believe that Cyprian queens as imported and sold by our respectable dealers are a mixed race? Mr. Benton we know supplies Cyprians; does he mean that a beginner purchasing queens sent over by him would not get the pure race? Our experience is that *pure* Cyprians vary considerably in temperament, and that very bad-tempered bees may yet be perfectly pure. The experience of the leading bee-keepers confirms this. As Mr. Simmins has appealed to Mr. Cheshire's statements in support of his arguments, we would point out their value by showing that he also gave them a bad character; and if our readers will refer to the discussion on Mr. Blow's paper, on p. 29, Vol. x. *British Bee Journal*, they will find the following words of Mr. Cheshire's:—'The third queen, which he got from the north of the island of Cyprus, raised bees of a dark colour. This last queen sent by Mr. Benton was going on fairly well. She was extremely small, her bees were small though bright. With regard to the tempers, the queen (the third in number that came into his possession) had raised bees that were not generally irritable, but if they were disturbed they were furious beyond expression. On one occasion when he transferred a swarm from one hive to the other, he was stung at least a hundred times during the operation, they were utterly uncontrollable; yet these bees previously had been easily handled.' Mr. Cheshire's considering Cyprians most amiable is so diametrically opposed to his own statements respecting their temper, that we have no doubt our readers will be able to reconcile them somehow. We have only to repeat what we have said over and over again, that Cyprians vary in temperament, and some better selection must be adopted before we can hope to have nothing but amiable bees. —Ed.]

THE REVERSIBLE SECTION RACK.

[846.] This section rack has been designed to minimise manipulation with the $1\frac{3}{4}$" section, for when with a crate of these sections one full one has been taken off the hive, and when no separator had been in use, the remainder must be moved up so as to have sections filled out to the same extent opposite each other. With this rack the whole sections are filled in and the crate full comes off at one time wholly finished.

There is a second advantage gained by its use (this is connected with the open-sided $1\frac{3}{4}$" section): it is that the brood-nest can be contracted in the honey flow, the queen kept out of the sections without use of excluder zinc, and a full bee passage of a quarter of an inch allowed the bees to the sections, by which, and with plenty of room in the sections, it is expected the bees will be prevented from swarming, and that as much comb honey will be stored as would be in frames worked for extracting.

The principle is very simple; it is applicable to all sections without or with separators of only same size as section with which they are employed; it is also applicable to all section-crates which are slightly wider than the sections contained in them. But the section-crate for which it has been especially designed is the Raynor-Benthall pattern, made a $\frac{1}{4}$" wider than the open-sided section on each side, to allow of bee passage round, and prevent pop-holes through the combs. Eight $1\frac{3}{4}$" sections fit in the space of seven two-inch wide; these eight are divided into two equal portions, the sections in each of which are clamped together by four slips of angle tin covering the four corners, and clasped or bent down over the narrow part of end sections at both top and sides. The opening at top and bottom of these sections is $\frac{3}{16}$" or excluder zinc size, that at the sides a quarter of an inch wide. When these racks are first placed in the crate, the $\frac{3}{16}$" opening is down, and when the comb is drawn out and a little honey stored in the centre of crate, the two racks are reversed and the sections previously on the outside are now brought to the centre, and when a little honey is again stored in these, the racks are turned on their sides, and as the queen can now do no damage, a full $\frac{1}{4}$" bee-space passage is allowed to the bees to work in the sections. By means of these racks every section in the hive can be placed directly over the centre of the brood-nest, or within the width of a section of the centre, and it is about the centre of the hive the chief storage and sealing over is done. One of Mr. Simmins's separators with a half bee-space added at the corners at each side would be required at the centre, when the end sections had not been evenly drawn out, and at the ends a half bee-space of $\frac{5}{32}$" must be added to face of boards closing up, when they touch the sections. The ledges for the sections to rest on are rectangular tin tunnels, inverted sides $\frac{1}{4}$" deep, width $\frac{3}{4}$"; these are tacked underneath to sides of crate, which are $4\frac{1}{4}$" deep, the outer side of crate being flush with side of tin tunnel.

If there are any advantages in inversion of section honey-comb, these racks seem to overcome the drawback to inversion of crates of them at one time, which drawback is that all the combs not being in the same state of development at same time, and in consequence it is difficult to know when to invert: Mr. Heddon seems inclined to find fault with inversion altogether on this account. With the racks there is no difficulty in securing the fitness of the comb and finding out the time for that purpose, shortly after the outside sections have been placed in the centre, the racks should be filled with sections of same standing, and fit for inversion. Should anyone interested in this crate or rack not thoroughly understand it I shall be most happy to explain everything required, and should a demand arise for either rack or crates, I should place samples in the hands of a manufacturer and have them made in quantity.—W. B., *Patrickswell, Limerick.*

IN THE HUT.

'Where the bee sucks,
There lurk I.'

[847.] I purpose, with your permission, to send you occasional notes, criticisms, suggestions, and hints on bee topics amongst the Horsforth bee-keepers, who I find are in the habit (like some kinds of bees) of resorting to secluded and solitary nooks, in which they may discuss their hobby free from the ken of the outside world. In such a nook is 'The Hut,' which I ought to try and describe to your readers, for, if I mistake not, its seclusion, or at least the seclusion of its inmates, is fated to experience fierce assault 'in the coming by-and-by.'

(When people think

'A chiel's among 'em takin' notes,
An' faith he'll prent it,'

it may be as *bad for the chiel* as for Stephenson's coo!)

Picture a sharply-sloping hillside in Airedale, well sheltered by woods of beech, birch, sycamore, and hazel on all sides but due south. A clearing of half an acre or so is utilised as a bee-garden (how much nicer *bee-garden* sounds than *apiary!*), and along the western side, under the protection of a hedge against that *bête noir* of black bees—the north-east wind, a row of hives is ranged. They are unlike 'the great Orion, sloping slowly to the west,' but resemble somewhat true orthodox Christians in sepulture in that they possess in their arrangements this relic of Paganism—on the re-awaking resurrection of early spring, they shall greet the great sun-god at his rising.

On the northern side of the clearing is a wooden hut, quite open on the south side, provided with a firmly fixed table, and canvas-covered, hay-stuffed seats, which at this season are highly charged with elements productive of rheumatism and hæmorrhoidal disturbance; so, like the objectionable dishes in Mark Twain's book, those seats are 'passed,' in favour of the table. Here, in the hut, midst bosky wood and mossy boulders, the calumet of peace is smoked, with perhaps a wandering Jew (W. J.) in perspective, probing about and pottering under stones for ants' nests, or else amusing the blue tits with shot from his catapult.

High noon, an hour before, and one after, are marked by incisions cut in the table on the line of reflection cast by a sharp-edged supporting pillar, and it is by the decisions of this homely sun-dial that adjournments are made. So you see all discussion is at present perforce *standing*, that is, when there are several subjects *on foot*, and frequent reference has to be made to the standing orders of the Association of which these happy bee-ists are members. Hearty jokes (artichokes, if you will) are anything but rare in this *bee*-garden, and are as freely taken as given. I do not, of course, impute to anyone the taking of 'what isn't his'n'; acting on the motto '*Honi soit qui mal y pense*,' which, being freely translated and pronounced, meaneth 'Honey and soot killed Mally (local for Mary) Spence.'

In one debate as to the best material for smokers, a Hutite suggests that cigars are best, when obtainable, but for old hands an efficient substitute may be found in good tobacco. Seriously, chemists frequently get corrugated paper as packing for bottles, and most of them will obligingly hand it over to us. A better thing, however, is old cord trousers (cut into strips, and rolled the size of the smoke-chamber), those of juveniles being much relished and preferred, or abhorred, by the bees.

There is one thing, we *framewell* (Yorkshire dialect), to succeed with in this part—we use only one kind of frame—'Abbott's broad shoulders.' It has been found

so convenient, when a vagrant swarm has hived itself in a decoy, to trundle the lot home again at nightfall, paying the owner the cost of the hive. One can, besides, 'help a worn and weary brother,' with a frame or two of drawn-out foundation, when packing-up for the heather, and so on.

Moral:—Have as much uniformity as you can in forming district associations; the co-operative system of purchasing will then come into play.—X. TRACTOR.

THE ONE-AND-THREE-QUARTER SECTION.

[848.] It might not be amiss now that the time of preparation has come for securing the results of next honey season, to review the objections raised against the disuse of separators, and reconsider the claims of the $1\frac{3}{4}$ section as being the best for storage of its surplus comb-honey.

The disuse of separators is objected to,—Firstly, that without their use the comb is irregularly sealed over; secondly, too bulged for glazing; thirdly, that in packing for transit the combs frequently touch one another; and lastly, that in unpacking it is difficult to know which comb to take out first without causing damage. It has been proved that 'perfectly level $1\frac{3}{4}$ sections can be worked without separators.' (See Mr. Grimshaw's letter, No. 690, page 537, *B.B.J.* of last year.) This success, probably, was in a honey-glut, or good honey year, the indispensables of level hives and careful manipulation being also observed; but it is not to be expected that in a bad year or intermittent honey flow, when work has to be done piecemeal, that the same symmetry of proportion can be preserved by the bees; for such times, and to bring the $1\frac{3}{4}$ into general use, Mr. Simmins has invented a separator (and allowed me to call the attention of bee-keepers to it), that, while it allows of the same full appearance of the section, as if no separator had been used, ensures a perfectly even section—one fit for glazing and exhibition at all times. This is accomplished by thickening the corners of the separator at point of contact with the section the $\frac{3}{32}$nds of an inch on each side, or $\frac{3}{16}$ths of an inch, a full bee-space altogether. Thus the face of comb is brought within a half bee-space of outer edge of section. But this separator is not recommended when it can possibly be done without, as it is found the comb-honey harvest is greatly increased where no separator had been used. With regard to bulging too much for glazing, this seems but to improve the appearance of the section should it occur, for we read of some of those worked without separators, that were at the Canadian Exhibition—'better than which eyes need ne'er wish to look upon; too bulged for glazing, but all right for the fancy boxes.' With two tacks or small screws through the cardboard into the wood, the comb is kept at any required distance from the glass; and the cost of those boxes can compare favourably with glazing when the time occupied by the latter is taken into account. In packing in travelling crate, there is no danger of the combs touching one another, for if packed in them in the same way as they had been in the crate on hive, there must be a bee-space between each two combs; and in unpacking, were the crate made a little longer than the enclosed sections, and the same arrangement used as in that on hive—a board with wedge, or board alone to close up—there would be no difficulty, on removal of this board, in knowing which section to take out first. Why was it that, whereas in Canada separators are in general use (see Mr. M'Knight's letter in *B.B.J.* of Nov. 11th last), nine-tenths of the sections at the Colonial Exhibition were produced without their aid? Our Canadian friends knew very well that when worked without separators, sections both look and sell better. At the close of the honey season, when it becomes necessary for the bee-keeper to have his sections sealed over quickly, the $1\frac{3}{4}$ inch, with the usual separator, makes a narrow section, one well suitable for that purpose. Thus we see the $1\frac{3}{4}$ inch is the best suited section for great produce; the best in appearance for sale and exhibition, and a good narrow for use at the close of the honey season. The best section therefore for general use, and one well suited at all points for storage of the surplus comb-honey of the coming season, appears to be the $1\frac{3}{4}$ inch wide, worked either with or without separators.—W. B., *Patrickswell, Limerick.*

THE NEW APIFUGE.

[849.] Mr. Lyon (p. 99) having thrown down the gauntlet by writing satirically of the fact that I have deemed it necessary to make it 'registered,' I am reluctantly compelled to take up the challenge in order that your readers may not be misled, and that your oft-quoted motto '*suum cuique*' may not be prostituted by one who seems desirous of 'ploughing with my oxen.'

In speaking of 'apifuge' he says, 'Oh, I must not use that awful word,' &c., &c. He was not always so sensitive, and must know that he *can* use it, but not to sell his goods by.

No sooner did my article appear on the exhaustive experiments I have made than Mr. F. Lyon began to advertise methyl salicylate. No sooner did an advertisement of Grimshaw's apifuge appear than he followed by using a word to sell his goods by, which word he knew I had coined or invented. *This* manœuvre being stopped by a letter from me, he now, like a familiar rodent in a corner, proceeds audaciously to lead the readers of the *B.B.J.* into believing that methyl salicylate is used in the manufacture of 'apifuge,' for he says, 'Alas, in future, when the subtle and peculiar odour of methyl salicylate pervades the tent,' &c., &c., when at the same time he has not a shadow of evidence, either in my writing or speech, nor evidence in any way, to support him in his assumption. Is not this 'trying to sharpen his axe on my grindstone?' Or perhaps is it a '*ballon d'essai*' to try and ascertain what apifuge is composed of by a negative process of getting me to deny erroneous assertions? We thus see how really necessary it was for me to register the apifuge, attended, as inventors in bee-keeping are, by ever-vigilant outsiders.

I tried methyl salicylate and it failed. It failed also when Mr. Cheshire got stung on the knuckle whilst manipulating the 'awful example' the Rottingdean demons. It failed when Mr. Hart gave Mr. Cheshire his bottle of it, saying, 'he reckoned nothing of it' (*vide* conversazione). It failed also because (*vide* Mr. Cheshire's book) it is so 'liable to be terribly adulterated and weakened' that its price to-day goes from—well, very, very low up to 32*s.* per pound.

The last sentence in his letter is too rich to be passed over, so I will give it *in extenso*:—'If the use of substances to prevent stings should come into general use, the effect upon the rising generation of bee-keepers can but be to render them very unworthy successors of the present skilful manipulators.' And this comes from him who sells a lotion professing to be the only cure for stings! How absurdly inconsistent!

Again, what is there 'slovenly or slapdash' in a method which allows naked hands, and gives perfect protection against stinging, besides a feeling of calm confidence even in times of accident? I think the 'charm attending the cool, careful manipulation' is on my side. Cyprians, Syrians, or Ligurian half-breds, it matters not which of these: one can have the really best workers with perfect impunity. For myself I do not see that apifuge is anything but a boon to the vast majority of bee-keepers, amongst whom we may dare to include some timid or nervous ladies (of course there *are* no nervous men!), gloved and gauntleted up to the elbows, to say nothing to those to whom a sting or two is a serious matter on account of their extreme suscepti-

bility. For example, I wish Mr. Lyon had seen my hand after using Dr. Pine's lotion for two days in my attempts to reduce the swelling from one sting I purposely obtained in his honour on Saturday, February 26th, in order to test its efficacy; whilst Mr. S. Abbott was trying in vain to get stung (after using apifuge, which is *not* repugnant to bees) by a tribe of demons we disturbed by kicking the hive, he playing an imaginary piano on the alighting-board with his fingers, and pushing two or three bees in at the entrance as he crushed them.

Surely Mr. Lyon is prepared to admit that bee-keepers *do* get stung, and *don't* like it, else why his lotion?

Ah! does not the *crux* of the whole thing rest here, that it is a contest for very existence by the law of natural selection between—

Grimshaw's Apifuge, an alleged perfect preventive,	and	Dr. Pine's Lotion, an alleged 'perfect cure?'

Prevention being notoriously better than cure, do you see that 'Othello's occupation's gone' if my stuff win the contest?—R. A. H. GRIMSHAW, *Cray Hill, Horsforth, near Leeds.*

AN APIFUGE.

[850.] Some two years ago I came across a receipt to prevent mosquitos and other insects from biting travellers in hot climates, so thought it might also prevent bees stinging. I have used it two years when manipulating and consider it a great preventive against being stung. I also apply it to any one that gets stung and it has proved very effecacious. One ounce cedar oil, one ounce olive oil, mix and rub a drop or two on each hand when manipulating.—J. W. L.

ARE INVERTIBLE HIVES WATERTIGHT?

[851.] May I be allowed to ask Messrs. Neighbour and Sons to explain in your columns how they mean the rain to be kept out of the hives figured on the first page of cover of No. 244 of the *B. B. Journal?* The advertisement says their 'British Invertible B. F. Hives' are 'adapted to our British climate;' but I doubt it, unless the hives be sheltered by a shed or placed in a house. The hive seems a good one, and from the illustration (which I hope you will transfer to your columns that it may be preserved with the volume when bound) easy to manipulate; but unless it can be made watertight at the joints where one box sits on the other I shall not like to risk a colony of bees in it except in the height of a very dry summer.

To a bee-keeper like myself, who makes his own hives, but recommends to his friends and correspondents good and simple hives no matter who is the maker, the question is an important one. I am constantly being asked and written to about the best hives to purchase, especially by beginners in bee-keeping, and I should not like to be wrong as to the properties of the hive I recommend.

I am afraid, that, in the recent craze for invertible hives there is a danger of losing sight of the essential qualification of hives being thoroughly weathertight at all seasons. And so many new things have, during the last ten years, been pointed out, and urged upon us and then allowed to pass silently into forgetfulness, that one cannot swallow all at once the doctrine—untried and unproved—that we must convert all our trusty bar-frame hives in which our bees have done so well for many years, into invertible hives or we will be left behind the times as to bee-keeping.—H. W. LETT, M.A., *Aghaderg Glebe, Loughbrickland, Co. Down.*

THE STANDARD THE RIGHT SIZE.

[852.] The bee season is approaching, and bee-keepers are considering which system of management to employ. Some will adopt the invertible system, but the majority I think will go very slowly in that direction, and many will not move at all, since they profess their inability to see how any good can result from turning so many thousand head of brood upside down. At present there seems but little evidence *pro* or *con* either in England or America, and therefore all must watch and wait.

The interchangeability of the different parts of hives seems to me to be the leading idea, and not merely their invertibility, in Canada, and the same idea has been advocated by Mr. Cowan for some time. The same idea produced the Association standard frame—a frame too large for some, and not large enough for others, so that I presume it is just the right size. There are frames of three sizes to select from, the diminutive, the medium and the gigantic, and each size has its advocates.' Many, no doubt, would like to give the shallow frame a trial, but do not see buying new hives for the experiment; and to such I say there is no need to do so, as they can be worked in the hives now in use, whether comb or extracted honey is desired.—A. GREEN, *Selston, Alfreton.*

ROOFS OF HIVES.

[853.] In a book on pigeons I have seen a recommendation for making travelling boxes out of paper in order to combine lightness with strength in the following manner. Dissolve one ounce of Scotch glue in twenty ounces boiling water, and the last thing before using stir into it a little at a time twenty grains chrome alum dissolved in ten ounces more of hot water. This will entirely prevent the glue being ever affected by damp and keep the whole manufacture hard and stiff, but no more must be prepared than can be used at a time, as when once cold and stiff no amount of heat will re-dissolve the glue. Sufficient sheets of any waste paper can be glued together and left to dry in a press. I should like to try this plan for making roofs of hives, but have failed to obtain the ingredients necessary. I therefore take the liberty of asking if any readers of the *British Bee Journal* could inform me where the chrome alum can be got. I presume that best Russian glue would do in the place of Scotch glue mentioned.—J. B. BUTLER, *Bristol.*

DEAD QUEEN.

[854.] I started bee-keeping about seventeen months since, and on the whole, have been very successful. Last season I had three frame-hives, from which I obtained nearly two hundredweight of honey, mainly by following minutely the instructions in your *Journal.* I venture to say that you do not possess a more devoted admirer in the British Islands than your humble servant. I look to you as my *père* in the bee line, and your *Journal* comes as a 'boon and a blessing' every week, to delight the heart and relieve the monotony of my existence as a certificated teacher in a remote country Board School.

Fired by the above success, I determined to have a Ligurian stock of bees, so last season I obtained from Mr. Simmins a splendid queen, which I introduced about 6th September, 1886, to a strong stock of brown bees, covering about ten to twelve frames, quite thick. I afterwards gave the same stock 15 lbs. of syrup, by rapid feeding from five holes. On 19th January, Ligurian bees were on the flight-board, and flying about freely.

To-day I picked up my Ligurian queen, on the ground before the hive, apparently quite dead. Temperature 42° Fahrenheit, by mercurial thermometer in shade. *No sun,* slightly mizzling with rain all day. I picked her up at twelve, in the middle of the day. Temperature at 7 a.m. same day was 40° Fahrenheit, so there could have been no sudden rise of temperature. I could not believe for some time it was the queen, I was so struck with my loss. However, I took her into the house, and

held her in my hand before the fire for nearly an hour. She just moved a leg or two, showed her sting, and became quiescent. Is she dead, or only a case of suspended animation? I send her to you by this post, to see if you, *père* editor, can tell me the cause of death, or how it was. Are they getting ready for swarming, and thrown out a surplus queen? Is my hive queenless? what am I to do? See what my ambition to have a Ligurian stock has come to. I now have eight blacks and brown stocks, and one stock of half blacks and half Ligurians. If they have no queen, will they rear one now? What was she doing outside the hive?

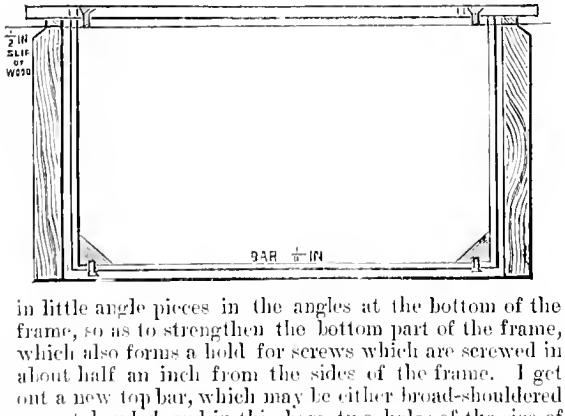
Please help me out of my dilemma. I await your verdict with interest. I believe two weak stocks, that are covering six or eight frames, better than joining; I don't want to join.—CHAS. J. JELFS, *Dodford, Bromsgrove, Worcestershire, 18th February.*

[Your Queen-bee is as dead as Queen Anne. It is impossible to say what was the cause of the queen's death. Sometimes bees will supersede a queen, without any apparent reason, and it is probable that yours are raising a queen. As you do not wish to unite, on the first suitable opportunity examine the colony, and, if you find queen-cells in progress, use your discretion as to allowing it to stand. Were the case our own we should certainly unite it to our weakest colony, first cutting out the queen-cells. If there are no queen-cells, uniting is the only alternative, since it is too early to obtain queens, and, if this were possible, the risk of introduction now would be great.

For your consolation, however, we may state that, in March last, a strong Italian colony, in our own apiary, taking a fancy to change its queen, destroyed her, and raised another in her place, which mated successfully about the middle of April, and is now a most prolific breeder, and a beautiful queen in size, shape, and colour. It must be noted, however, that drones were plentiful in our apiary at the time this queen matched.—ED.]

REVERSING FRAMES.

[855.] I beg to take the opportunity of writing to you, in reference to the article which appeared in the *B. B. J.* of December 1, 1886, on 'Reversing Frames and Hives,' in which you were of opinion that if reversible frames were to come into general use, a simple appliance must be used that will utilise our present frames and in no way interfere with their size, with which I quite agree. I now submit to you the following simple plan, whereby any one might try reversible frames for a few pence. I first cut off the ears of the top bar, then glue



in little angle pieces in the angles at the bottom of the frame, so as to strengthen the bottom part of the frame, which also forms a hold for screws which are screwed in about half an inch from the sides of the frame. I get out a new top bar, which may be either broad-shouldered or metal-ended, and in this bore two holes of the size of the head of the screws, and from these holes are two wedge-like slots, which, when the bar is pushed, tighten both the bars. This same top bar would do for any frame, and section-cases, if worked in the rear of the hive, might by the same be inverted and kept in position. —R. G., *West End, Bodmin.*

'CROAKING QUEENS' (203.)

[856.] 'Amateur Expert,' in 'Jottings' for the 3rd ult., 'hopes that all who own "croaking" bees are satisfied with Mr. Grimshaw's excellent paper on the "Vocal Organs of the Bee," and that they will endeavour to notice the different "croaks" in future, and, moreover, that none of them will ever "croak" themselves.'

I read Mr. Grimshaw's paper with considerable interest, and I beg to assure your facile and racy correspondent that—as in the past, so in the future—the different 'croaks' will receive their due share of notice from me at least. 'A. E.' hopes that *all* who own, &c. This is pressing into the service the whole army of bee-keepers—a mighty host!

An attentive examination of the paper in question discovers nothing that in any degree militates against—much that favours—the possibility of the existence of such a sound: and this whether we investigate and analyse the minute anatomical structure and arrangement of the spiracles and their relations to the wings, or simply follow Mr. Grimshaw in his description of some of the sounds. 'We all know,' says he, 'the lazy contented boom of the drone as contrasted with the whizz and whirr of the disturbed honey-gatherer. We recognise the contented hum of the quiet prosperous hive in opposition to the sharp "poop! poop!" of the lost queenless hive.' Now this sharp 'poop! poop!' 'poop!' is clearly a species of 'croak.' It is just possible, however, that this 'poop! poop!' sound or croak is *never* uttered by a *queenless* stock. 'Stahala,' quoted in the *Journal* of the 10th ult., states that the sound "H-u-u-u-u-u-u!" is produced by queenless stocks both in summer and winter,' a very different sound from 'poop! poop!' 'Stahala' furthermore adds, 'A loud "wuh-wuh-wuh!" is only heard when breeding is going on, *but never when the hive is queenless or has an unfertilised queen.*' This 'wuh-wuh-wuh!' or rather, to give it its proper pronunciation, this 'vuh-vuh-vuh!' is the abrupt croak, rattle, or drum-roll that I have on former occasions described as peculiar to the queen, and, as I have never heard such sound emitted by a virgin queen, possibly peculiar to one fertilised. It does not, however, necessarily follow that an unfertilised queen is, anatomically, incapable of uttering such sound, but only that her condition and surroundings, in the virgin state and in the fertilised, differ, and that the necessity for the emission of this sound is, therefore, in the former state absent.

This, Sir, is an apparently trivial subject upon which to write, but occasionally great truths and important facts are evolved and receive their elucidation from very small *data*, and I consider it the duty of each of us, no matter how humble-so-ever his intellectual status, to do what he can for the general good.

Finally, being of a somewhat hopeful disposition and temperament, I shall perhaps the more easily put into practice 'A. E.'s' last piece of advice—viz., 'never to croak.'—EDWARD C. ANDERSON.

SYRUP FEEDER.—I think my own syrup feeder is the simplest and best. I find tumblers and tin lids about the house that fit each other. Bore five small holes in the tin lid near the centre, fill the tumbler with the syrup, put on the lid and turn down on the stage, which is placed over the feed-hole. The stage is a square piece of wood ¾ of an inch thick, about 1½ inches square, with a round hole in it 1½ inches across, and covered with perforated zinc, cut with scissors and nailed on. No shovel is required, not a drop is spilt, and the tumbler can be turned up any time, and be refilled before it is quite empty.—BEESWING.

Rebiew.

Das Bienenwachs und seine Verwertung by J. Dennler. Published by the author at Enzheim. There have been a good many pamphlets on the uses of honey as food and medicine, but up to the present time, with the exception of what is found in large and costly books, nothing has been done in a separate and cheap form to bring the utility of wax before the notice of the public. Occasionally we have seen articles exhibited in which wax was used, and after our visit to the National Exhibition in Zurich, in 1883, we described in the *British Bee Journal* the fine collection of things we saw there. That wax has a variety of uses not generally known, we were convinced by the fact that there were no less than twenty-two articles in which it formed an ingredient, or in the manufacture for which it was used. These were 1, glass engraving; 2, painting in wax colours; 3, wax modelling; 4, bleached wax; 5, cosmetique; 6, wax for waxing thread; 7, corking wax; 8, preparation for waxing floors; 9, wax salve; 10, wax plaister; 11, solution in benzole: 12, various forms of wax tapers; 13, cold cream; 14, mould of teeth; 15, anatomical preparations in wax; 16, meerschaum tubes; 17, collar glazed with wax; 18, wax matches; 19, comb foundation; 20, candles; 21, medals; 22, photography. Such being the various uses to which it can be put, it is with pleasure that we welcome the appearance of this pamphlet, which commences by giving a history of the production of wax, then its conversion into foundation, and its uses in the household, and, lastly, its uses as a medicine. We find a description of the best way of obtaining the wax pure, and how to detect its adulterants. M. Dennler is well known as one of the editors of the *Elsass-Lothringische Bienenzeitung*, is the chairman of the Strasburg section of the Bee Society, and has taken an active part in disseminating a knowledge of bee-keeping. He is also one of the lecturers of the Society, and it gave us great pleasure when we visited him at Enzheim to find that he practises in his apiary what he preaches out of it. His other occupations prevent him keeping more than twenty hives, and most of them are of the Baden type. He told us he had three harvests of honey during the season; first, fruit trees in April, which give the honey a slight-rose coloured tint; second, Trifolium incarnatum, from the end of May to the middle of June, this honey has a yellow tinge; third, linden, which has a yellowish hue. With the multiplication of bee-keepers a larger quantity of wax is required for foundation, and it is therefore important that there should be no waste, and even the oldest combs contain something worth getting out of them. How it is to be done this pamphlet explains, we therefore recommend it, and shall hope, from time to time, to give our readers some useful extracts from it.

Replies to Queries.

[835, 836.] (Edward Clowes.)—Your two queries are most difficult to answer. The possibilities of artificial swarming were known to the ancients; whether they practised it or not it is impossible to say; but no donbt they did. In order to give you some idea as to how long smoke has been known as an intimidant to bees, I may mention that Johnstone, in his travels in Central Africa on the Upper Congo, found that many tribes here were bee-keepers, suspending their hives—made of rushes—on the branches of trees, and *using smoke* when taking the honey. When did this commence? Here we find totally uncivilised people, having had no possible chance of intercourse with civilisation, practising a method which we, in our self-sufficiency, consider ourselves the introducers of. The partially civilised natives of India use smoke in taking the nests of *Apis dorsata* and other varieties.—W. B. Webster.

Queries.

Queries and Answers are inserted free of charge to Correspondents When more than one query is sent, each should be on a separate piece of paper.

Our readers will greatly oblige us by answering, as far as their knowledge and observations permit, the Correspondents who seek assistance. Answers should always bear the number and title placed against the query replied to. Any queries unanswered in this way will be answered by the Editor and others.

[857.] Would any reader of the *Bee Journal* say at what distance Ligurians should be kept from blacks to keep them pure?—J. W. L.

[858.] How far off might I place a nucleus hive with a young queen from an apiary of a dozen hives and expect to get her fertilised?—J. W. L.

[859.] Will some one kindly tell me the best way to pack bees in Combination hive to send by rail? Will the bars want any fastening put to them? also if it will be best to let them travel by night or by day? May they be sent by passenger or goods train? Any information will oblige. —H. B.

Echoes from the Hives.

Cambridge, February 1st.—Bees have been flying freely during the past week from my hives, many of them visiting a large tub of rain-water which stands a short distance from the hives. The bees appear very healthy, fly strongly and without falling to the ground, as often happens, after they have been shut up in the hives for a long time by stress of weather.—J. S.

February 26th.—A most lovely day, the air filled with the joyful hum of bees. Examined all my stocks, eighteen in number, all perfectly healthy and strong. Eggs in all, hatching brood in several; in one hatching brood in three frames the centre patch as large as a saucer, young bees flying. The greater part of the stocks were made up of condemned bees in September, packed for the winter between cork-dust dividers, made so that the cork-dust can be emptied and dry sugar substituted; frames covered with American cloth, and over that trays three inches deep with canvas bottoms, filled with cork-dust. Frames parallel to the front of hives.—F. L.

Upton, St. Leonard's, Gloucestershire, Feb. 28.—Examined my thirteen hives this day. All single-walled Simmins's hives ⅞″ thick, except one. Seven had enamel cloth on all the winter, the remaining six carpet and chaff cushion. Bees all dead in three hives owing to weakness or insufficient stores, the remaining ten in good condition, though stores almost exhausted. The surviving ten stocks consist of one Cyprian, two Carniolans, one Ligurian, three Hybrids, three Blacks. Of the three last stocks two were blacks and one hybrid.—E. Wilkins.

Goole, March 5.—During the last two or three weeks the weather has been all that could be desired—beautiful, warm, bright days, which our pets have made the most of, carrying in a quantity of water and artificial pollen which we have supplied, as there are no flowers yet in bloom. We have not lost a single hive this winter up to the present, and I think it is not at all probable that we shall (thanks to the *Journal*), as all have plenty of sealed stores, and the bees are in good condition. Let us hope that we may have a better honey season this year than last, for some of our hives had to be fed up for winter as they had not been able to gather sufficient stores, let alone surplus, and we had very few swarms, although all the stocks were strong.—A. Woodhead.

The Mall House, Lismore.—Our daffodils (the Irish daffodil) have been out a few days, and are crowded with bees. In view of the fact that our blossoms and vegetation in the south of Ireland is at least ten days or a fortnight ahead of England, I do not think it amiss to begin a very gentle stimulation about March 1. The celandine is out now, and daisies in abundance, gorse in quantities, crocus, daffodils, heath in gardens (snowdrops over), scillas, and primroses both wild and in gardens, and the laurustinus, are sheeted with bloom. The ribies will be in bloom in less than a week. Under these circumstances I think a

little gentle stimulation advisable, especially as some of my stocks are a trifle short of stores. I shall be glad to know your opinion. Last year we had no honey stored in May, but the year before, which was an average fine spring, I had a beautiful crate of sections finished by May 25. Last year one terrible storm in May destroyed all the fruit-tree bloom and made an end of the apple crop, pears, &c. I observe the bees much prefer the white and purple and purple striped crocuses to the common yellow ones. I have quantities of each, but see the bees frequenting the former in much greater numbers. There is a very large pale purple striped variety, that they seem to prefer to any other.—F. W. C.

[Your season is exceptionally early; at least a month earlier than ours. In mild weather you may safely begin to stimulate. If any are short of food feed copiously, giving sufficient room in the brood-nest by occasionally adding empty brood combs as required. We shall hope to hear of your success in reaping a bountiful harvest.—Ed.]

NOTICES TO CORRESPONDENTS & INQUIRERS.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

J. S. S.—1. *Cowan's Hives.*—In hives of this character having no shoulders to the frames, the quilts should be large enough to completely cover the frames and also rest upon the sides of the hive. This will prevent the bees getting up. 2. *Examining Hives.*—When opening bar-frame hives smoke at the entrance is not necessary, a little blown under the quilt will have the desired effect.

M. F.—*Bees in town, a mile from open country.*—There is no reason against bees doing fairly well. Scores, or perhaps hundreds, of stocks are kept in the suburbs of London; depending for their living almost entirely upon flowers and trees in gardens, and hardly ever getting to really open country.

J. Turncock, Jun.—The sample of sugar forwarded is that recommended by Mr. Simmins for dry-sugar feeding. You will find it serve your purpose.

C. A. T.—*Loss of Queen.*—It is almost impossible to say the cause of the death of your Italian queen. Since worker bees—her progeny—appeared three weeks ago, it is evident that breeding had been carried on during the winter and in severe weather, which is a bad sign in an autumnally introduced queen. Imported, or travelled queens are rarely long-lived. Death might, however, have been caused by robbing—by which in the spring queens are often destroyed; or it may have arisen from old age. If you left the hive raised from the floor-board for any length of time, it is most likely that robbing was the cause of the misfortune. At this time the bees are very eager to appropriate their neighbours' stores, that it is unsafe to open a hive at all during the hours of flight; and the evenings at present being too cold for manipulation, it is best to leave the bees alone, save to supply food where it is required. 2. *Bacillus depilis.*—The disease of your other colony is, from your description, *Bacillus depilis*. Clear out the dead bees and feed at night with warm phenolised syrup, according to Mr. Cheshire's recipe; or with salicylised syrup, according to Mr. Cowan's. We have cured with both.

W. Baker.—*Loss of Queen.*—You do not say whether you opened your hive to give the candy. However, that may be, we think the encasement of your queen arose from the entrance of strange bees into the hive, alarmed and chased, by which the queen rushing wildly to the entrance was surrounded and encased by her own bees, for protection from the enemy. On the entry of strange bees into any hive, its rightful occupants will always encase their own queen to preserve her life, and on the departure of the intruders, will release her uninjured. You did quite right to rescue and return her to the hive. In future, feed at night, and cover up securely, to prevent any scent of food escaping, which entices other bees to attack. It might, however, chance that the queen was aged, and about to be superseded by the bees. If so, you will probably find her dead body cast out of the hive. We advise you not to disturb the hive again.

Samuel Watson.—I. *Loss of Queen.*—The peculiar hum to which you allude denoted excitement arising from the loss of the queen. It is impossible to assign a cause for her death without a knowledge of the previous history of the colony. At this season old queens are often dethroned, from the loss of fecundity, and young ones raised in their place. 2. Mr. Abbott publishes a number of leaflets on bee-keeping. 3. We are pleased to hear that you are working for the good cause.

J. C. R.—*Transferring.*—1. Do not attempt to transfer before the middle or end of April. We should prefer allowing the hives to swarm, and to transfer three weeks after swarming. If you follow this advice set the swarms on the stands of the old stocks, and remove the latter to a new position until you transfer them. 2. We prefer Ligurians to Carniolans. 3. The time of the honey harvest in your locality depends, as in other places, on weather, and on the kind and quantity of bee forage, such as fruit bloom, and early nectar-yielding plants. In an early season it will probably commence about the end of April; in a cold late season about three weeks later.

J. H. W.—*Moving Bees from one side of high close fence to the other.*—If you do it now you will lose a few bees, but not many. Put small skeps on the old places to collect stragglers, and in the evening return them to the hives. If you delay, your best plan would be to shift them along by degrees until behind the new position, as in your sketch, then mount them up on a stand to above the fence, turn them round by degrees to face the other way, and then lower them to their permanent places.

Sagged Down.—*Combs broken down in Autumn.*—Carry the hive indoors, pass a piece of wood under the ends of all the frames and lift them bodily out. Then separate the fallen combs and tie them into the frames. Use smoke to keep the bees quiet.

F. J.—1. *Making Candy.*—If you follow the instructions in *Modern Bee-keeping* you will get it right; but, if you burn it, it will not set hard, and it will be moreover bad for the bees. 2. *Drone (?) on Flowers.*—You must have been mistaken in the insect which you saw.

W. G. Campbell.—*Les Abeilles, Organes et Fonctions*, by Maurice Girard, is published by J. B. Baillière et Fils, 19, Rue Hautefeuille, Paris: London house, 20 King William Street, Strand. The price of the book is fr. 4.50.

A Beginner.—1. *Sugar.*—The sugar enclosed is suitable for dry-sugar feeding. 2. *Stimulation.*—We prefer syrup to dry sugar for stimulation. It should be given warm aud at night from a bottle feeder. A pint every three or four days is sufficient. 3. *Natural Pollen.*—With plenty of hazel in bloom within half a mile artificial pollen is not necessary. Whenever bees have access to abundant natural pollen they will neglect the artificial.

E. Lupton.—*Fighting.*—The bees dragged out from the hives *nolentes volentes* are undoubtedly robbers, but so persistent are they in their evil course that they will attack again on getting free from their pursuers until at length they pay forfeit with their lives.

J. C. and Son.—The sugar is suitable for dry sugar feeding, but not for making syrup on Mr. Simmins' plan: Mr. Simmins uses for this latter purpose Dutch crushed. See his advertisement.

C. A. Jones.—We always bind up the advertisements with our volumes. With the contents to each number and the copious index we have a full synopsis of the contents of each volume.

Berkshire Hog.—We believe that the pay of an expert varies from 5*s.* to 10*s.* a-day with expenses. We consider you would have no difficulty in estimating the value of your time in rendering assistance to those who may require it. We did not require your postscript to prevent us from falling into the possible mistake of supposing you belonged to the profession mentioned.

R. T. S.—Red clover (*Trifolium pratense*) is not of much use to common hive-bees; their proboscides are too short

to reach the nectaries. Ligurian and Eastern bees are able to work upon it, as also humble bees.

Welsh Novice.—The conditions being in both cases identical, you may calculate that the average yield per hive in an apiary of 100 would be equal to that in one of twelve.

J. H. M.—We suggest that by stimulating the bees in your skeps you should get swarms as early as possible, and after twenty-one days transfer. The directions in *Modern Bee-keeping* are so precise that we do not think you would find any difficulty in driving.

H. E. S.—There are no symptoms of foul brood in the portions of comb forwarded.

Received price list of Apiarian Appliances manufactured and sold by Wm. M'Nally, Glenluce, Wigtownshire, N.B.

A bottle of Grimshaw's Apifuge from Abbott Brothers.

Show Announcements.

July 11-15.—Royal Agricultural Show at Newcastle-on-Tyne. Entries close May 12. J. Huckle, Kings Langley.

August 3-5.—Yorkshire Agricultural Society at York, Secretary, H. L. Rickards, Poole, near Leeds.

Business Directory.

For the use of Manufacturers and Purchasers of Bee-keeping Appliances.

HIVES AND OTHER APPLIANCES.

Abbott Bros., Southall, London.
Appleton, H. M., 256A Hotwell Road, Bristol.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
Burtt, E. J., Stroud Road, Gloucester.
Edey & Son, St. Neots.
Howard, J. H., Holme, Peterborough.
Hutchings, A. F., St. Mary Cray, Kent.
Meadham, M., Huntington, Hereford.
Meadows, W. P., Syston, Leicester.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
Stothard, G., Welwyn, Herts.
The British Bee-keepers' Stores, 23 Cornhill, E.C.
Walton, E. C., Muskham, Newark.
Webster, W. B., Wokingham.
Wren & Son, 139 High Street, Lowestoft.

HONEY MERCHANTS.

Abbott Bros., Southall, London.
Baldwin, S. J., Bromley, Kent.
British Honey Co., Limited, 17 King William St., Strand.
Country Honey Supply, 23 Cornhill, E.C.
Howard, J. H., Holme, Peterborough.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
Walton, E. C., Muskham, Newark.

FOREIGN BEES AND QUEENS.

Abbott Bros., Southall, London.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
Benton, F., Munich, Germany.
Howard, J. H., Holme, Peterborough.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
Simmins, S., Rottingdean, near Brighton.
Walton, E. C., Muskham, Newark.

METAL ENDS.

Abbott Bros., Southall, London.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
Lyon, F., 94 Harleyford Road, London, S.E.
Meadows, W. P., Syston, Leicester.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
Walton, E. C., Muskham, Newark.

COMB FOUNDATION.

Abbott Bros., Southall, London.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
Howard, J. H., Holme, Peterborough.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
Stothard, G., Welwyn, Herts.

THE WINDSOR BEE-KEEPER'S
Choice Selected Collection of
SEEDS OF FLOWERS
SOUGHT AFTER BY BEES. Free by post, 2/6.
SOLD BY (162)
JOHN SMITH, The Royal Nursery, Clewer, Windsor, Berks.

CHAPMAN HONEY PLANT.

I WILL send to any address 26 varieties of BEE-FLOWER SEEDS, including the Noted CHAPMAN HONEY PLANT, for 2s. post paid. GARDEN SEEDS.—I will send 21 packets of Garden Seeds to any address for 2s. 6d. post paid. BAR-FRAME HIVES with Straw bodies, the hive least affected by heat or cold. My Hives and Appliances are all forwarded carriage paid, and returnable if not approved on arrival. Please send your address on post-card, and I will send Descriptive and Priced Catalogue post free. Address John Moore, Seed Merchant, Market Place, and Prospect Farm, Warwick.

HONEY BOTTLES.
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,, 2 lb., 19/9 ,,
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SKEPS, FOUNDATION, &c.
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SEED of CHAPMAN HONEY PLANT, 3d. per packet. Figwort, Melilotus, Cornflower, Borage, Catnip, Spider Plant, Limnanthes, and all the leading Bee Flowers, in large or small quantities. Send for Catalogue, post free. Plants of Figwort, Limnanthes, Golden Rod, Melilotus, Thyme, Myrobella Plum, &c. Price on application. Address Hy. Dobbie, Cringleford, Norwich.

DO NOT LET YOUR BEES STARVE! Specially prepared CANE SUGAR SYRUP, either Plain or Phenolated, in 28 lb. tins; per tin, 8s. SOFT CANDY in 1 lb. boxes, either with or without Pea Flour. Finest Refined CANE SUGAR, in 2 cwt. bags; per cwt., 19s. 6d.; 1 cwt. bag, 19s. 9d.; ½ cwt. bag, 10s. 3d. Perfection FEEDERS, 2s. and 1s. 3d. Dry Sugar FEEDERS, 1s. 6d. Address Thomas B. Blow, Welwyn, Herts.

Comb Foundation for Supers.
Abbotts' No 6 Foundation; 12 Standard Sheets to the lb.
Price 1 to 2 lbs. 2/9 per lb. | Price, 5 to 25 lbs. 2/6 per lb.
,, 2 ,, 5 lbs. 2/7 ,, | ,, 25 ,, 50 lbs. 2/5 ,,
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SPECIAL QUOTATIONS FOR QUANTITIES.
Parcel Post.—*For weight of package allow for 2 lbs. or less. 1 lb. 5 lbs. or less 2 lbs.*
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MANIPULATE WITHOUT SMOKE!

WEBSTER'S FUMIGATOR

Entirely supersedes the Smoker, both in Simplicity and Effectiveness. No 'going out.' No tainting or soiling of combs. Always ready for use without any preparation. Can be carried in the pocket.

With Bellows, 4s. 6d.; postage, 4½d.

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Can be adjusted to any ordinary smoker bellows.

6 oz. Bottles of Agent—carbolic acid, oil of tar, and water, properly mixed—6d. each.

WEBSTER'S SWIVEL FRAME-LIFTER

WILL BE READY SHORTLY.

With this appliance, frames can be removed from hive, replaced and examined on both sides without inverting, with one hand, leaving the other free for manipulating, at the same time preventing soiling the hands with propolis.

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1st Prize Silver Medal, Royal Counties' Agricultural Show.

Highest Award, Colonial and Indian Exhibition, London.

2nd Prize Bronze Medal, Colonial and Indian Exhibition, London.

2nd Prize Altrincham, Lancashire and Cheshire B. K. A.

NOTICE TO DEALERS.—In thanking my numerous Patrons, I beg to say my SECTIONS are on the way, and will arrive in London shortly. The following sizes in stock:—$4\frac{1}{4} \times 4\frac{1}{4} \times 2$, $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{2}$, $4 \times 4\frac{1}{2} \times 2$, $4 \times 4\frac{1}{2} \times 1\frac{1}{2}$, either open top or at all four sides. $5\frac{1}{2} \times 6\frac{1}{4} \times 2$ and $6\frac{1}{4} \times 5\frac{1}{4} \times 2$, open top. $1\frac{1}{2}$ Sections same price as 2". Order at once, or you may be disappointed, having received a large number of orders. Address A. F. HUTCHINGS, West Kent Steam Power Hive Works, St. Mary Cray.

Sectional view of New Patent Bee Feeder.

Simple, Safe, Clean!

Unrivalled for Summer Feeding. No excitement. No robbing.

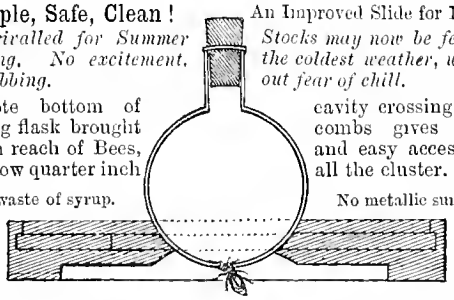
An Improved Slide for 1887.

Stocks may now be fed in the coldest weather, without fear of chill.

Note bottom of feeding flask brought within reach of Bees, also how quarter inch cavity crossing the combs gives safe and easy access to all the cluster.

No waste of syrup.

No metallic surface.



See Advt. next week. *Price 1s. 6d. each, complete.*

Send P.O.O. to Patentee, J. P. HOPKINS, Milverton, Somerset.

AGENTS Wanted in all parts of England, Scotland, and Ireland, for the SALE of HIGH CLASS BEE-KEEPING APPLIANCES. Address 'Manufacturer,' c/o A. H. HAYNES, 125 Houndsditch, London.

FIRST CLASS Open Sided $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{3}{4}$ One-piece AMERICAN SECTIONS. Free on rail at Liverpool. 1000 for 1*l.*; 500, 10*s.* 6*d.* Less for larger lots than for smaller quantities. Apply to R. WHITE & Co., Importers, Patrickswell, Limerick. Trade supplied.

GLASS HONEY JARS a Speciality. Write for Price List, sent Free. Address FREDK. PEARSON, Stockton Heath, Warrington. A 2407

IMPROVED British Bee-keepers' BAR-FRAME HIVE, made of One-inch Well-seasoned Wood, Eight Frames, Waxed, Quilt, Walker's Feeder, Excluder Zinc, Floor-board, Waterproof, and Cover. Hive complete, 5*s.* each. Directions for Management, 1*d.* Address ISAAC HALE, Maker, Horncastle. A 2402

FOR SALE.—A Large Wrought-iron Six Feet DRIVING WHEEL, for Circular Saw or other Machines; Handle, Bearings, &c., complete. To sell Cheap, having adopted Steam Power. Address JOHN MOORE, Prospect Farm, Warwick. (165)

LYON'S Patent METAL ENDS.

THE only perfect pattern. The metal being flush with the inside of the Hive side, CANNOT BE FIXED TO IT BY PROPOLIS. All the so-called Improvements CAN.

The Special Alloy used allows them to be LIGHT YET STRONG. One gross weighs $5\frac{1}{4}$ lbs.

Price for 1887 **5/6** per gross.

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Prize Medal, 1879, for the best Bee Dress. The only Medal ever awarded to a Veil, **2/2** each, post free. Every genuine Veil bears the Registered Trade Mark.

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Guaranteed, with Directions, **1/2** per bottle, post free.

Methyl Salicylate, or 'Sting Preventer.'

1 oz. bottle, post free, **1/8.**

HIVE MAKERS supplied with SPRINGS, GLASSES for Sections, PHENOL, METHYL SALICYLATE, in bulk, &c., &c., at lowest prices.

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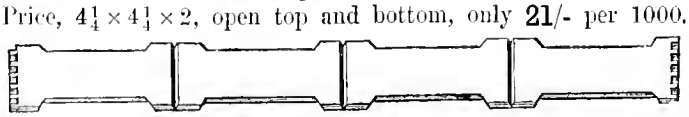

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THE
BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, St. Martin's Lane, W.C.'

[No. 247. VOL. XV.] MARCH 17, 1887. [PUBLISHED WEEKLY.]

Editorial, Notices, &c.

OUTLINES OF BEE-KEEPING FOR BEGINNERS.

(*Continued from page* 67.)

III.—BEES ARE ABLE TO STING.

1. Worker and queen bees are furnished for their defence with a stinging apparatus, whose principal parts are the *sting* and *poison-bag*.

2. The *poison* is a clear liquid, and is introduced through small openings in the sting into the wound when stung. After a few moments there is a sensation of heat, and this spot begins to swell, the swelling spreading to the surrounding parts. If children are stung on the head, very often the whole face becomes swollen, and it takes several days for them to recover.

3. With grown-up people, after they have been stung several times, the effect produced is less marked, until, with very few exceptions, the parts stung no longer swell, and the bee-keeper is said to be sting-proof. Where stung, there is still the sensation of pain, but this passes away without any swelling.

4. When stung, remove the sting as quickly as possible with the point of a pen-knife, and wipe the place with a handkerchief moistened in water. A little honey put on the wound gives relief, but it should not be rubbed, as this helps to spread the poison and causes more irritation.

5. The poison (called *formic acid*) has a peculiar smell, which can be recognised when one is stung. It is this smell that makes the bees angry; therefore, when working amongst them, always have a pail of clean water handy, so that you can plunge your hands into it to remove the acid. For the same reason, care must be taken not to crush a bee. If it is absolutely necessary to kill one, its head should be squeezed.

6. When a bee persists in buzzing round the bee-keeper's head, he must move away quietly, and when at some distance from the hive, it will generally leave him. If the bees are angry in consequence of having their hive upset, they should be sprinkled freely with water, poured through the fine rose of a water-can, or with a syringe, before anything further is done to them.

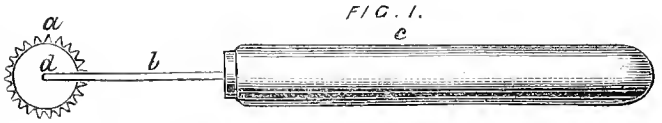
(*To be continued.*)

WOIBLET SPUR EMBEDDER FOR FIXING FOUNDATION.

When we attended the Conference at the Indian and Colonial Exhibition on the 6th October last we introduced to the notice of the British and Canadian bee-keepers present an apparatus invented in Switzerland for securely fastening foundation in wired frames (see *British Bee Journal*, 1886, page 474). As we have since received several inquiries about this apparatus we will give our readers a description of it.

Fig. 1 shows the instrument one half its actual size, and

FIG. 1.



which consists of a brass toothed wheel *a*, working on a centre at *d*, fixed on one side of the wheel to a rod *b*, driven into a wooden handle *c*.

In fig. 2 the principal parts are shown full size. The

FIG. 2.

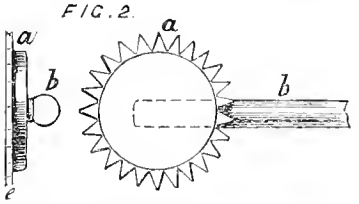


FIG. 3.

diameter of the wheel across the teeth is $\frac{13}{16}$ of an inch and the width of the toothed part is $\frac{1}{32}$ of an inch. There are twenty-six teeth, which have a V groove at their edges *e*, fig. 2. This is also shown at *e* in fig. 3, in which one of the teeth and a portion of the wheel will be found enlarged four times. Fig. 4 shows the double

FIG. 4.

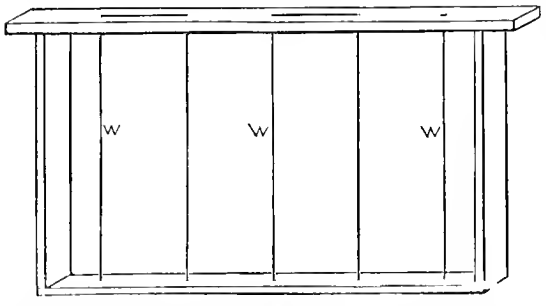
dots made by the teeth, full size and also their exact distance from each other.

The frames have to be wired with No. 30 tinned wire, as in fig. 5. Five wires are sufficient, although six are better, and are frequently used. The top and bottom bars are pierced with small holes by means of a fine bradawl. The frame is then placed over a board which fits it exactly and is $\frac{3}{8}$ of an inch thick, having two pieces nailed on the back, as in fig. 6, and first recommended by Mr. Abbott many years ago for fixing foundation with his wax-smelter. We then proceed to put in the wires and fix each end by turning it down and driving a wooden peg into the hole, which can then be cut off level with the surface of the bars. The wires must be drawn pretty tightly, and it is for this reason that we put the

board inside the frame. If we did not do so the tightening of the wire would curve the top and bottom bars inwards, but the board prevents this taking place. The frames now wired are ready for the foundation.

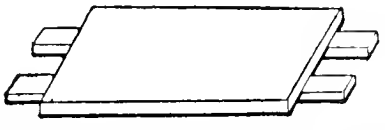
Place a sheet of this on the board and over it put the wired frame so that the foundation touches the top bar.

FIG. 5.



Have a lighted spirit-lamp by the side of you, and in the flame heat the wheel of the embedder and place the V groove on the wire. Then run the wheel along from one end of the wire to the other. The heat melts the wax at each point, which cools as fast as the wheel travels

FIG. 6.



forward, and the wire will be found covered with wax, because the teeth are so close together. The operation is completed so rapidly and perfectly that no one who has once used it will ever think of employing any other means of embedding wire.

We have been particular in describing the method of working, because it is different to the ordinary way of embedding, where the wire is only pressed into the foundation at intervals of ½ inch to one inch and not covered with wax, and also we are anxious that a good thing should not be discarded because it is not properly understood and incorrectly described. Mr. Cheshire has figured something of this sort, and has given instructions for using it, which are likely to mislead, for such an embedder as he shows could not possibly work as it is intended to do. He was at the Conference and we showed him the instrument, which was the first ever shown in England, and he pictures a thing with a wheel 1¼ inches in diameter and with only nine teeth instead of twenty-six, and those nearly ⅛th of an inch wide instead of $\frac{1}{52}$, and ⅜ from point to point. His description is so amusing that we cannot refrain from giving it in his own words. In *Bees and Bee-keeping*, page 208, he says: 'Some use the wheeled apparatus (fig. 60). The method of operation is obvious. The wheel, which is stellate, is grooved at the edge, so as to hold the wire beneath and between the cutting points (*p p*). As the wheel is driven the wire in short lengths is pushed down into the body of the wax. The foundation is now very securely held, but it cannot be safely given in all cases without attachment to the top bar.' It may be obvious to the writer, but we know such an apparatus could not be used in this way without damaging the foundation and doing more harm than good. Surely the Swiss apparatus ought to have been correctly described, or if it was not understood, as appears to us was the case, it should have been left out. We wonder if the writer has ever tried the method he describes and who the 'some' are who use the embedder he figures. The beauty of the Swiss invention is that the teeth being so fine and close together the wire is entirely covered with the molten wax (without even disfiguring the foundation), and not pushed firm into the body of the wax, and it thus gets over a serious objection which formerly existed to wired foundation. We recollect some years ago when it was first introduced we objected to it after trial, because we found that where the wire had not been covered with wax the bees did not use the cells through which the wires passed. A striking instance of this came before our notice at a show, we think at Windsor, where in a large observatory hive of Mr. Abbott's make we called the attention of the Rev. G. Raynor to the fact that in combs perfectly filled with brood there were lines of empty cells corresponding to the wires in the foundation. Since that time such foundation has been greatly improved and the wire is now properly embedded, but still it has to be fixed to the top bar, and even then the combs can never be so firmly fixed in the frames as when the frames are first wired. Foundation in wired frames embedded with the Swiss embedder requires no other fixing. The instrument is the invention of Monsieur Woiblet, and he calls it the 'Woiblet spur' from its resemblance to one. When alluding to it we shall in future always call it the 'Woiblet Spur Embedder.'

USEFUL HINTS.

Weather.—Easterly winds and frosty nights, with days of mist and fog, have fallen to our lot of late. Possibly the best weather for the bees. Days of brilliant sunshine and unseasonably high temperature in February and March have never in our experience preceded a bountiful summer. 'Better have the cold weather now, sir, than later,' says our weather-wise factotum in his oracular manner. Whether the old saw—'Mists in March mean frosts in May'—will prove correct of the present season we shall be able presently to note; but, certainly, an English month of May without frost, and free from the 'Blackthorn winter,' would be next to a miracle. The great advantage of a cold and backward spring is threefold:—(1), Ardent bee-keepers are unable to manipulate the bees to their hearts' content; (2), vegetation is in abeyance until there is little fear of later frosts nipping the fruit in the bud or bloom; (3), there is no inducement to the bees to wander forth and perish in search of non-existent pollen and nectar. We can always supply our bees with flour-cake, artificial pollen, candy, syrup, water, and all other good things at home, and so encourage their breeding propensities to the full extent. Then, when the good time comes, our hives, teeming with population, will render a good account of the deliciously scented clover fields and other nectar-yielding crops.

Apifuges.—In our early days we knew an 'aged Corycian who possessed a few acres of barren land, too poor for ploughing, unfit for cattle, herds, or flocks, or for growing vines; yet this old man cultivated white lilies, poppies of every shade of colour, and other plants in which his bees delighted. He was the first to hive the spring swarms, the first to squeeze the luscious honey from the combs in autumn.' He kept one hundred hives, on the old-skep-natural-swarming system, and managed them all himself. The bees paid his rent, and maintained his family. Indeed, he was one of the most successful bee-keepers we ever knew, but he used no *apifuge*—neither veil nor gloves. Stripped to his shirt, with bare, brawny arms and bronzed chest and neck, from early morn to dewy eve he lived amongst his bees. Him have we often seen covered with living bees, hiving swarm after swarm in quick succession, unmindful of their stings, and happier far than kings. He used no *apifuge*—no *Put the bees to flight* for him.

Honey a Sting Averter.—*Allurements* he preferred. Arms, face, and neck, were all besmeared with liquid honey, until they glittered in the sun

like varnish, and him the bees never sting. Why should not our lady bee-keepers—and timid gentlemen, too—anoint the hands with a little honey—the smallest quantity will suffice, and wear a veil? How changed are we! Begloved, beveiled, *apifugated*, we go forth conquering and to conquer. But why squabble about a technical scientific term? The despised dead languages of ancient Greece and Rome are not so poor and circumscribed that they cannot supply a duplicate.

Methyl Salicylate, or Kentrapone?—Let Mr. Lyon take heart. *We* do not wish to '*put the bees to flight*.' Fugitive swarms and deserting colonies are not so rare that we need desire to increase their number! Let him call his 'Methyl Salicylate' '*Kentrapone*,' which is simple Greek for 'sting-averter,' surely a more appropriate term than 'Apifuge' or 'put-the-bees-to-flight.' This newly coined word, we presume, is formed after 'Febrifuge,' or 'put-to-flight-the-fever.'

Apifebris, or Bee-fever.—But is not this rather dangerous ground? There *is* such a disease as 'Apifebris,' or 'Bee-fever.' Alas, how many a poor wife prostrates herself—a suppliant with votive offering—praying that her lord may be restrained from spending all his time and means on the new-fangled '*apistical appliances*' (forgive the 'apt alliteration's artful aid'). Or it may be that the *wife* is bewitched—for sometimes, 'though hardly ever,' the lady becomes the enthusiast, although we should never be so ungallant as to accuse her of harbouring 'a bee in her bonnet'—then the *husband*, perchance, becomes the deprecator, since there are few households in which both husband and wife are smitten with the disease, or can afford to devote all their time to 'apifuges,' *et hoc genus omne*. By the way, we *never* chance to meet a gentleman, now-a-days, who confesses himself ignorant of the ancient classics, however much he may despise them. The schoolmaster is, indeed, abroad.

Brood-Spreading.—Whether any disturbance of the brood-nest of a colony of bees during the spring months, or, indeed, at almost any other time, is advantageous or disadvantageous is a moot question. Our own opinion is that, unless in very exceptional cases, more harm is done than benefit derived. And this opinion seems to be fast gaining ground amongst skilled apiarists both at home and abroad. We do not mean to assert that in able and experienced hands, during suitable weather and under favourable conditions, it may not sometimes be done with advantage, but we have almost invariably found that, given a strong healthy colony, with a prolific queen at its head, and sufficient stores, the increase of population is greater when the nest is left undisturbed than when brood-spreading is practised. The brood-nest is always globular in shape, and in whatever manner it is attempted to spread it, this shape or form must be destroyed. If you place an empty comb in its centre, you divide it into two portions, and the bees into two clusters, one of which retains the queen. If you place the outside combs, each containing very little brood, in the centre, you destroy the circular form of the nest. If you turn round, or reverse (not invert) any of the brood-combs, again you destroy the globular form. And in all these cases you remove a portion of the brood away from the stores prepared for its use, since pollen and diluted honey are always placed in the cells around the outsides of the nest and the cluster of bees, the former taking exactly the shape of the latter.

When the combs range from front to back of the hive, and a southern aspect is given, the nest will always be found on the south side, immediately over the entrance, because that is the warmest part of the hive, and consequently best adapted for brood-rearing; and if care be taken that the combs, outside and behind the nest, are not too heavily clogged with honey, any surplus which might interrupt the extension of the nest laterally, or backward, will quickly be removed by the bees, and the cells having been thoroughly cleaned out and polished, the queen will find ample room for increasing the nest to the full extent of her powers, and the opportunity of keeping it in the particular form which she and her children instinctively prefer. These remarks relate to the spring months, as a matter of course, since when the summer is advanced, and surplus-boxes are in position, brood-spreading is no longer thought of, as we assume the brood-chambers to be full of eggs and hatching larvæ.

There are experienced apiarists who persist in spreading brood, but they are few in number. Professor Cook simply adds empty combs as needed, placing them next to the brood, which can hardly be called spreading. Mr. Miller does very little in this way, but when he adds extra combs he generally adds them outside the brood-nest. Mr. Demaree does not spread brood because he believes that his bees build up more rapidly by being allowed to follow their own instincts, which lead them to concentrate and pack closely the brood in the early season. If he thinks the brood-nest too much contracted he adds combs at the side of the brood as fast as the bees can cover them. Mr. Brown considers that the 'spreading-brood furor' has consigned many colonies to the shades. Mr. Hutchinson does not approve of the so-called brood-spreading: if extra combs were needed he would put them at the side of the brood-nest. Mr. Heddon does not practise it, but prefers sectional brood chambers, and when required adds an empty comb chamber *below* the full one, which has no tendency to cool the nest, but the spreading system, he thinks, has. Mr. Pond does not use spreading at all, but prefers building up by adding frames of brood from other colonies, considering the main point to be, *keeping the brood in the centre of the cluster*, so that it may have *all the heat possible*. And Mr. Newman, the editor of the *American Bee Journal*, from whence these views are selected, believes that spreading brood is often disastrous, especially when practised by any but experts. The above-quoted authorities are practical, experienced bee-keepers, in most cases conducting large apiaries.

Again, during our entire bee-keeping experience we have always kept some half-dozen colonies in skeps of medium size, from which we take natural swarms, and these colonies have, almost without an exception, given us earlier swarms than frame-hives. Why is this so? Simply because the brood-nest in skeps cannot be disturbed either by spreading brood or by other manipulations. With us, too, these colonies winter remarkably well, no matter how severe the winter may be. Why? *because* there can be no escape of heat or moisture through the thickly propolised interior of dome and sides of their domiciles, nor can their combs be pulled about in the autumn and the propolis broken up or removed altogether, under the idea of 'winter preparation, putting into winter quarters, &c., &c.' We are really inclined to the opinion that the bane of modern apiculture is too much interference with the internal arrangements of the hive at unseasonable times and for purposes to be deprecated. But, even so, we are by no means unmindful of the great advantages of moveable comb-hives over those with fixed combs, when rightly and carefully worked and manipulated.

Frame-distance.—When preparing frame-hives for winter, we contracted, by division-boards, each of four hives, containing strong colonies, to six frames, placing a strip of wood $\frac{1}{4}$ inch wide, and of the same thickness and length as the top bars of the frames, alternately between the broad-shouldered frames, thus rendering the distance from centre to centre of frame $1\frac{3}{4}$ inches. These colonies were the first to rear brood at spring. By the middle of last month their combs were filled with sealed and hatching brood to an extent far surpassing other colonies located in similar hives with

combs at the usual space of 1½ inches, and we were obliged to add, at the sides of the brood-nests, frames of sealed honey. We attribute this early breeding to the bees being able to keep up a higher temperature by clustering in thicker 'seams' in the wider spaces than those wintered on frames at the ordinary distance. Here, then, is surely a hint for enabling bees to pass safely through a winter of long-continued cold. A space of 1¼ inches, or at most 1⅜ inches, from centre to centre of combs in the brood-chamber during the honey season, is better than 1½ inches, since the bees are thereby prevented from storing honey in quantity therein, and are driven upwards and compelled to store in the supers. But this view applies only to the production of comb-honey in preference to extracted.

Cause of Queens Dying.—For several weeks past we have received numerous queries as to the loss of queens —queens cast out of the hives dead, and in some cases queens of last year, in others last year's imported queens, without any apparent cause, and often leaving abundance of brood in the hive. Without an exact knowledge of the history and conditions of the various colonies bereft of mothers, it is impossible to assign a cause. But, generally speaking, there are three very common causes of queen-destruction at spring: (1.) Keeping hives open too long a time when manipulating on a fine day while bees are in full flight, thus allowing the entrance of strange bees, and consequent encasement and death of queen. (2.) Careless feeding, by which robbing is encouraged. And (3.) encasement by her own children of an aged and effete queen, which terminates in her death. When a queen ceases to lay, or produces drone eggs only, the usual method of despatch is by encasement, *i.e.* hugging to death. We know that a theory has been started that bees encase their queens in order to urge them on to laying, and sometimes, while so acting, with the best intentions, kill them unintentionally. In that theory we do not believe.

Feeding and Stimulation.—While concluding these hints, reports of a fall of snow, from eight to ten inches deep, in Scotland, reach us, and snow is falling thickly in our eastern counties, with bitterly cold north-east winds, and sharp, frosty nights. Where feeding is a matter of life or death, let warm, soft candy still be given. During such weather it is useless to offer syrup, since the bees will not take it, but candy will be joyfully accepted. The beginning of next month will be soon enough to stimulate, except, perhaps, in southern districts. In this we must be guided by the weather and the forage, since no general rule can be laid down to meet all cases. Reserve and disinfect all combs upon which colonies have perished, if not too old and clogged with pollen, storing them in a dry place, and keep them free from moths. These will be found very useful for swarms, for extracting purposes, or for enlarging brood-nests. All other work preparatory to the quickly approaching season, such as providing section-racks and hives, and inserting foundation, should now be pushed forward without delay. Keep all colonies as warm as possible by adding extra quilts and coverings during the cold weather. By these means breeding will be encouraged and population increased before the honey season arrives.

JOTTINGS BY AMATEUR EXPERT.

'Mel sap t omnia.'

I hope the various Hon. Secretaries and Committees will profit by the excellent advice given them by the Editor in current number of the *Journal* on the question of show schedules.

Our esteemed friend, the contributor of 'Useful Hints,' gives us a quotation from a letter he received as to committees, &c. I presume none but a party of English gentlemen would do the work as our committee and officers do theirs. It is a characteristic of our nationality, and it will be a bad day for our country when such cease to be found. The extent of their subscriptions is an index of the length of their purses, and not of the depth of interest they feel in the objects of our Association. There are many amongst us in humbler walks of life, working in less prominent spheres of bee-keeping whose interest and self-denial equal, or even exceed, these gentlemen's proportionately, and that is my chief reason for wishing to remove all *fancy* qualifications. We should have 'one man one vote,' and 'universal suffrage,' and never fear but that only those who have time and money to spend in the service of the Association and are above suspicion, would get elected on the Committee.

Our versatile friend, Mr. Grimshaw, has turned from poetry to 'wrangling' (nothing offensive is meant by the word). He complains of another sharping his axe on his grindstone; well I complain that Mr. Grimshaw has sharped his axe on our grindstone and got us to turn it while doing so. I refer to the gratuitous advertisements he has got in the form of letters in the *Journal*, on the sole assumption of his invention being such a blessing to bee-keepers. Of course he has perfect right to his 'invention,' whether it be artificial 'wintergreen,' or the word 'Apifuge.' But if he is going to sell hardware, he should live at Birmingham. I am one of not a few of those who contend that all honorary officers of associations should not have the shadow of a suspicion of being a dealer. Here is Mr. Grimshaw in Co. with a great firm for the sale of an article which his official position gives him an opportunity of pushing: it stands to reason that the other goods made by the same firm will be pushed at the same time; we get the thin end of the wedge—unintentional I have not the least doubt, but none the less true—from 'X.-tractor,' one of his friends with him 'In the Hut.' Mr. Cheshire's experience of 'Cure for Foul-brood' may be of service to Mr. Grimshaw, he will find it in a recent number of *B. B. J.*

Our Berkshire friends are good at 'Comestibles,' they seem to have made their late Annual Meeting a jovial 'picnic,' and a very bright idea too.

The Rev. H. W. Lett, M.A., asks if the 'Invertible Hive' is water-tight. I remember the question was put to Mr. Jones at our late great Conversazione at South Kensington, and he replied, 'Yes!' which brought out the retort, 'It would not be in our climate,' and immediately Mr. Jones—who is nothing if not keen at parrying an awkward question—said, 'Water in Canada is as wet as it is anywhere.' But we must not forget the Canadians winter in cellars.

I notice the Editor's reply to our disconsolate friend, 'Chas. J. Jelfs.' May I suggest she succumbed to the pressure of breeding, as many queens do in early spring, and such queens if they do not die are speedily 'improved' out of existence by the bees in a most summary manner. The Syrians and Cyprians are especially good at this work. Join them, Sir! join them! never caudle queenless stocks this time of year, nor any other time if you wish to make bee-keeping pay.

Dear 'Bees-wing' thinks his own feeder is best after all,—of course he does, and so it is. I am glad to find he puts his wits to work to contrive a feeder out of a few simple things that he has to his hand, instead of spending a half-crown in one. A day labourer came to me to-day with a pardonable glow of pride, to ask my opinion of a feeder he has schemed, and considering his scanty advantages, very clever it was, as I told him.

In the Canadian *Bee Journal* for February 16th, fifteen of the principal bee-keepers of Canada and the United States of America give in answer to a 'Selected query' as to the best cure for foul brood, and not one of them seems ever to have given salicylic acid or phenol a trial. Rather slow this for our Transatlantic friends!

As to virgin queens 'croaking' I would refer our

'hopeful' correspondent 'Edward C. Anderson' to the remarks made by Mr. Haviland at the late Conversazione as reported in the *B. B. J.*, and remain 'croakingly' —Amateur Expert.

ASSOCIATIONS.

YORKSHIRE BEE-KEEPERS' ASSOCIATION.

Craven District.

A meeting of persons interested in bee-keeping was held at Skipton on Saturday, March 5th. Bee-keepers from Bolton-by-Bolland, Bradley, Cononley, Gargrave, and Skipton, were present, and Mr. Tordoff, Gargrave, was voted to the chair. It was decided to form a branch of the Yorkshire Bee-keepers' Association to be called the 'Craven District Bee-keepers' Association.' The annual subscription was fixed at half-a-crown, and persons wishing to join the Association are requested to communicate with the Secretary. The following officers were appointed:—President, Rev. A. P. Howes (rector of Bolton Abbey); Hon. Treasurer, Mr. G. H. Tordoff (Gargrave); and Hon. Secretary, Mr. J. Dodgson (Skipton). An executive committee will be elected at a meeting of members to be held the first Saturday in April.

HANTS AND ISLE OF WIGHT BEE-KEEPERS' ASSOCIATION.

Swanmore Branch.

The above Society has just completed a series of lectures on bee-keeping for the benefit of cottagers, &c., in the above district, at Bishops Waltham, Droxford, Botley, Swanmore, Exton, Corhampton, and Curdridge: the lectures being given by the Rev. W. E. Medlicott, Hon. Treasurer; Mr. H. W. West, Hon. Sec.; and Mr. C. Martin, the Hon. District Adviser.

The subject at all the lectures was thoroughly well handled, the lecturers lucidly explaining the methods of right and wrong dealing in the manipulation of the hives, and showing the great advantage attached to the modern mode of bee-keeping over the old barbarous one of murdering the bees at the end of summer. The lecturers were assisted by a fine set of slides showing every phase of bee-life and bee-keeping, a splendid set of diagrams, and bar-frame and other hives. The audiences showed great interest in the subject, and an addition to the number of members has been the result.

IRISH BEE-KEEPERS' ASSOCIATION.

A committee meeting was held on 7th instant at 35 Trinity College. Present: Dr. G. P. Allen (in the chair), Dr. Traill, Dr. O'Farrell, Messrs. Vanston, Read, Milner, and the Hon. Secretary. It was determined to hold a bee show in July or August. Arrangements were made for the printing and distribution of leaflets pointing out the advantages of belonging to the Association, and of a new circular relating to the sale of members' honey.

Cheap Wax Extractor.—I am very much obliged to you for inserting my query (No. 774), as by that means I have found the article I want, namely, a cheap wax extractor, and Killick's answers the purpose well. It is, as is said, a great boon to cottage bee-keepers, although it would be useful to one possessing, say, thirty or forty stocks. All you have to do is to put it in a slow oven with any old combs on the top and a little water in the pan, and in about an hour all the wax is run from the combs into the pan below. The plan far exceeds either Mr. Webster's or 'Amateur Expert's' process, as there is no mess, and by putting it in a slow oven the wax is not discoloured and turns out in a cake when cold.—A. S.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Upper St. Martin's Lane, London, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. Huckle, *King's Langley, Herts (see 2nd page of Advertisements).*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

PAINTING INTERIORS OF WOODEN HIVES.

[860.] I was very glad to read the 'Useful Hint' at page 70 about painting or varnishing the interiors of wooden hives. I have always painted the whole of the insides of my hives—two coats of ordinary oil paint—I am not particular about the colour, but I take care to rub it thoroughly over every part of floor-board, brood nest, super cover, and roof. This I did with the first wooden hives I made, now many years ago, and I have advocated the practice in every lecture I have had the pleasure of giving on modern bee-keeping in different places throughout the counties of Down, Antrim, Armagh, and Tyrone. Most bee-keepers, like Mr. Pettitt of Dover, have exclaimed against the practice, but I remain unshaken in my advocacy of it. What led me to it was because a new straw skep is invariably varnished with propolis as soon as possible by the bees: and reasoning as to the why and wherefore, I saw that the moist vapour which rises from the hive would condense on the propolised or painted surface and quickly run down where the bees could use it with their food, or it would escape at the entrance and do no harm. Whereas I observed in hives with unpainted interiors that the moisture in cold weather sank into the wood and saturated it, whereby the bees were kept in an unnatural damp house for the winter months. Of course in dry warm weather it makes no matter, but our climate being mostly damp we have to provide for it. Then I tried the experiment myself, with the result that in hives whose interior is painted the quilts and winter packing remain always dry and sweet, while in one hive which I keep for curiosity with an unpainted interior I have to change the quilt and packing several times during each winter. Then as to the paint on the inside being injurious to the bees, which has been urged against my practice, why I have changed a strong colony into a hive on the second day after the interior had been painted, and I never had a better producing stock than it was immediately afterwards. All I look to is that the paint be quite dry. Moreover, it is a curious fact that bees are attracted by fresh paint. I observe that whenever any painting is being done outside my residence the bees quickly find it out and visit it, but for what purpose I am not in a position to decide. This partiality has been noticed long since, see for instance some correspondence about it in Vol. xiv. of *Science Gossip* for the year 1877. A couple of years ago I read a paper before our North-East of Ireland Bee-keepers' Association, in which I advocated on the above grounds the painting the interior of all wooden hives, but I was condemned by all my fellow bee-keepers. I rejoiced, therefore, when I found the Editor of the *British Bee Journal* telling how good it is to make the wooden hive as to its inside as comfortable as the bees make the skeps of straw.

As I am not ashamed of my opinions I have no occasion to adopt a fictitious name.—H. W. Lett, M.A., *Aghaderg Glebe, Loughbrickland, Co. Down.*

CYPRIAN BEES.

[861.] I notice that in your last issue Mr. Simmins speaks strongly in favour of these capricious insects, but I hope 'our Editor's' remarks will be sufficient to prevent any one being misled. In case they are not so I will add some of my experiences. These were not with one stock but with many, all of them headed by queens imported direct from Mr. Benton; though when an experienced apiarist gets one stock and finds it 'quite unmanageable,' he has every reason for believing that an increase would not be productive of benefit in that direction. Possibly my difficulties may have been the result of improper treatment, though I am generally considered to handle bees as well as most folks, and everything connected with their importation made it to my interest to make the best of them, as, whatever other faults they had, they were certainly profitable to sell, and had I been unscrupulous enough to recommend them they would no doubt have paid well; but, as Mr. Simmins remarks, some manufacturers, &c., only recommend what they honestly believe to be good, and I believe the firm I belong to (Abbott Brothers) are generally put in that class. Truly some statements were made at first based only on the reports of Messrs. Jones & Benton which had to be contradicted, but there was no intentional deception in this. I have found that while the Cyprians are in small colonies only, or while the hives contain only young bees, they may be easily handled, but that whenever a stock is in condition to work a super or store surplus honey it is as dangerous to handle as a bomb-shell.

As I at first devoted all my spare time to raising queens I had no strong stock to handle, and therefore could not fully appreciate their temper, but my subsequent experience is as much as I want. I remember one operation in particular. I had to remove a queen from a full colony and felt determined that it should have every chance of behaving well. Having put on a new straw hat and veil, and a freshly washed holland jacket, made on purpose for handling bees, with tightly-fitting waistband and belt, the attack was made very much as directed by Mr. Simmins, without smoke.

The combs were handled in turn, the queen caught and carefully put in her box; but here the trouble began. The bees suddenly found some flaw in my management, though I cannot say where; and though I had only to put the combs up together and replace the quilt, I was forced to retire twice before I could do so. The bees rose in a cloud and attacked me on all sides. Stings on the hands did not much matter, but when busybodies force themselves between one's coat-buttons and explore until they find a tender spot, it is more than a regular bee-man cares about. The second attack was made with the addition of string tied round the ankles, india-rubber gloves, and a smoker, but even thus armed I could not stay within range long enough to put on the quilt. Their resentment was now at its height, and a poor sparrow who settled near them was violently attacked and barely escaped with his life. Even when I considered all was over, and I had, after rest and refreshment, retired to my bedroom, an unsuccessful pioneer flew out on the removal of my waistcoat and attacked me with spirit. I do not say that Cyprian bees cannot be handled any more than I would say that tigers cannot be tamed or bomb-shells charged, for I have sometimes managed them very pleasantly, but I would strongly advise any one who has anything to do with them to be prepared for a desperate battle at any moment.—J. A. Abbott, *Southall.*

NOTES ON BEE-HIVES.

[862.] In the issue of the *British Bee Journal* for March 10, the Rev. H. W. Lett, M.A., asks Messrs. Neighbour & Sons to explain how they mean the rain to be kept out of their 'British Invertible Bar-Frame Hive. Unless their hives are sheltered by a shed or placed in a house, he doubts their 'being adapted to a British climate.'

Messrs. Neighbour & Sons state their hive, No. 100 of their latest catalogue, or the above, will surpass all imported ones, because made to suit the British climate.

From an inspection of the illustration and accompanying description of it, it is not surprising that such an inquiry should be made, nor would questions about the inferiority of the patent Heddon hive be more remarkable, after a careful reading or study of *Success in Bee Culture*, by Mr. Heddon, containing so admirable a description of the Heddon new hive and system.

Mr. Cheshire states, on page 90 of *Bees and Bee-keeping*, Vol. ii., that Mr. D. A. Jones, while retaining the specialities of the Heddon hive, has introduced several modifications, which will be generally accepted as improvements. Several of the largest British bee-keepers, manufacturers, and appliance-dealers, have decided not to supply the patent 'Heddon hive,' one dealer is ready to make a 'Heddon hive;' another says, the *Success in Bee Culture* is the best thing he has read, taking into consideration all things; while another wishes for Mr. Heddon to give up his screws and close-ended frames.

As so much has lately been said in the *B. B. Journal* about the pet Standard frames, and so little about the size of the patent Heddon frame, it would be interesting and useful to compare these sizes together with the new 14×14 in. frame of Mr. Simmins and the frame of Messrs. G. Neighbour & Sons. The $4\frac{1}{4} \times 4\frac{1}{4}$ in. section seems to have a controlling power over the Heddon frame, but not entirely. When the Heddon sized frame is worked *à la* Heddon, it will be difficult to equal. The size and arrangement of the frames of Messrs. Neighbour do not at once appear to do so; and I do not think that Mr. D. A. Jones's arrangements are equal to those of Mr. Heddon.

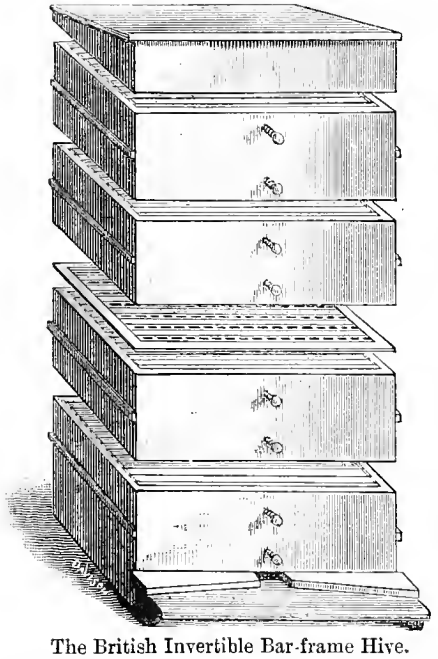
It should be well understood that some frames are right for surplus honey, some for rearing bees, and some for a medium course; would it not be well to arrange for these purposes the frames in the following order respectively, viz., Heddon, Simmins, and Standard, because a specialist will always have some colonies doing one thing and some another?

I am quite aware of the disadvantages, or more correctly the inconveniences, of having various-sized frames in an apiary or in this country. I also know a great deal of the sentimentality as well as the good connected with the Standard-sized frame; but I believe the time is coming when honey-raising will be developed into an industry on a different footing to what it is now, and upon more scientific principles. I am afraid the time is past when the cottager is the pet object to stimulate to walk in the better way, for will it really pay him to really keep all the bees he can at the present prices and low, falling prices of honey? Cannot good Mr. Simmins or someone give a lesson on raising wax? Cannot a few lessons be given on bee-breeding, and upon other subjects we are so much in the dark about?

As it would take a small pamphlet to go over the Heddon system *seriatim* I shall forward, with your kind permission, other notes occasionally; but it would be well to compare the floor-board and stand of the two hives in question (quite different in illustration), as well as the roofs of each. It should be mentioned or noted, that Mr. Heddon uses a shade-board which is kept in place by means of a large stone, and is to my mind evidently superior, as it protects the hive from undue heat in summer, and would act as a slope to turn off any rain encountered in this climate.—T. Bonner-Chambers, F.L.S., *March* 11.

IS NEIGHBOUR'S BRITISH INVERTIBLE HIVE WATERPROOF?

[863.] In reply to the Rev. H. W. Lett's inquiry in the previous number of your *Journal*, we beg leave to say that undoubtedly the best protection for such a hive is inside a bee-house or within an outer covering, but our notion has been that the British invertible hive may be kept in the same way as bee-keepers are in the practice of keeping the original and well-known Stewarton boxes, which are of the same thickness of material, and where the owners either provide protection from weather according to their own taste, or, as is the case in some instances, leave the hives exposed. Mr. Lett is no doubt apprehensive that the rain will gain



The British Invertible Bar-frame Hive.

access at the crevices. To guard against this we make the boxes to fit as close as possible together, and recommend that the roof be made secure by first putting on two coats of paint, and whilst wet stretching unbleached calico, then, when dry, adding two more coats of paint. We are about adopting a waterproof wrapper for the sides, which we think will be an improvement and supply the double purpose of keeping the hive thoroughly dry throughout the year, and also form a desirable shade during the hottest part of the summer.

This extra protection can be either carried out by the purchasers or supplied by us direct at a fractional additional cost; and if it prove as satisfactory as we anticipate, we will, with Mr. Editor's permission, publish a fuller description in a future number of this *Journal*.—Geo. Neighbour & Sons, 149 *Regent Street, London.*

INVERTIBLE HIVES.

[864.] Having recently procured one of Neighbour's Invertible hives, which is alleged to have been adapted to suit the British climate, I was a little disappointed in finding it very imperfect as to the resistance of wind and weather, and indeed but little better suited for outdoor use here than the new Heddon Invertible hive.

If this hive were allowed to remain unprotected in those parts where the several boxes rest on each other, the rains of this neighbourhood would penetrate to the inside in a few minutes, and in the event of its being left in this place without the boxes being attached firmly to each other by some means, the whole affair would soon be blown into the lake piecemeal.

Notwithstanding the various opinions pronounced on the merits and demerits of the peculiarities of this new hive, I incline to think that under intelligent manipulation it will become a success.

Mr. T. B. Blow has corrected one of the deficiencies alluded to, in his new invertible hive, and the size of the frames adopted by him is also an advantage as compared with other hives of this class, but the new hive still remains imperfect for outside purposes, in the want of due protection from beating rains.

Seeing how much interest appears to be felt in the Heddon Invertible hive, it is much to be desired that any new version or modification of it which may yet appear may be free from the defects pointed out, and the communication on this subject by the Rev. Mr. Lett, in your last issue, is very timely.—W. J. M., *Loweswater Hall, Loweswater, Cumberland.*

APIFUGE AND METHYL SALICYLATE.

[865.] Mr. Grimshaw's letter resembles the wail of a peevish child who fears the loss of a new toy. Let him not be troubled, I do not covet his 'Apifuge,' neither have I attempted to deprive him of it.

I have not his faculty for saying very little in a great many words, but, lest it should be thought that I am quite swamped by his exuberant verbosity, I should like a few words in reply.

Mr. Grimshaw is rather egotistical in assuming that my actions are in any way influenced by his. Let me assure him that his doings and writings are quite unimportant to me.

I happen to employ methyl salicylate in my own business, buying it in a pure form in quantities. Therefore, finding there was likely to be some demand for it, I offered it for sale, but not before the season commenced. If, in the meantime, Mr. Grimshaw wrote an article, that was no fault of mine, and no reason why I should abstain from offering it. If it proves to be useless, no one will buy it, and Mr. Grimshaw cannot complain.

The word Apifuge is not 'copyright,' that term only applying to designs and literary compositions. Hence my ironical remarks which have so stung Mr. Grimshaw. If he will refer to Act 46 and 47 Vic., cap. 57, sec. 105, he will find that he is liable to a penalty of 20*l.* for applying the term 'copyright' to an article not legally entitled to be thus termed. He might have also noticed that in my advertisement of 24th February, I placed the word 'Apifuge' in inverted commas, to indicate that it was not my term, but quoted from someone else. I do not want to know the composition of his preparation; if I did I should take more direct means than the roundabout way he suggests.

It matters not whether the smell pervading the tent be that of methyl salicylate or of any other compound. The taunt will still remain unanswerable that the bold operators have besmeared themselves with some substance to protect them. While discoursing upon the ease with which bees are subdued and rendered harmless by smoke only combined with care and skill in manipulation, I must confess I am too dense to see any inconsistency in my raising a protest against the use of these substances merely because I happen to be the proprietor of Dr. Pine's Lotion. It may seem inconsistent to decry an article which I offer for sale, but although my personal opinion is against the use of these substances, many may differ from me and wish to purchase methyl salicylate, not knowing where to procure it.

I am sorry my lotion failed to cure Mr. G., possibly the wound was poisoned by his 'Apifuge.' The lotion is intended to cure the effects of stings, not those of poisonous substances. It would not have commanded a sale for ten years if not found efficacious.—F. Lyon.

Replies to Queries.

[818.] *Varnishing galvanised Iron Reservoir.* (R. E. Lloyd.)—I should not recommend varnishing the galvanised iron reservoir you have in use. Is there any objection to coating it with *white enamel*, such as used in baths, saucepans, &c.? I have had no experience with this, but should fancy it would be far preferable to a zinc vessel or to one varnished.—J. T. Pattison, *Cheshunt.*

[853.] *Chrome Alum.*—Mr. J. B. Butler, Bristol, can procure chrome alum of any dealer in photographers' necessaries; it is used in small quantities by makers of dry-plates, and has the property of rendering gelatine or glue insoluble. Bichromate of potash, of any chemist, and many other chrome salts, have a somewhat similar effect. I think Mr. Butler's suggestion a good one, and well worth a trial. Any *good* glue would do, but common glue, being adulterated with other gummy substances, would not be rendered sufficiently insoluble.—J. A. Abbott, *Southall.*

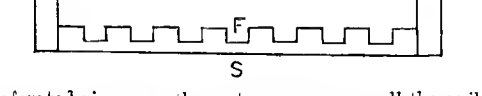
[853.] Any good glue, size, or gelatine will do, and bichromate of potash can be obtained at any chemist's who supplies photographers. The process is the same as used in carbon photographic printing, and to render the glue insoluble, should, when dry, be exposed to full daylight. It is not sensitive while wet. The mixture would keep good for a week or more if kept wet in a cool place, or if dry, excluded from light and air, or the article could be made of plain glue and paper, allowed to dry, and then saturated with a cold solution of the bichromate.—H. M. Appleton, *Bristol.*

[857.] *Pure Ligurians.* (J. W. L.)—You would have to keep them at least from two to three miles away; even at that distance they will occasionally get cross-fertilised. Hybrids are usually splendid workers.—W. B. Webster.

[857.] (J. W. L.)—You must put Ligurians quite five miles from blacks to keep them pure. You may put your nuclei any distance from three yards to one mile for the purpose mentioned.—Amateur Expert.

[858.] *Pure Fertilisation.* (J. W. L.)—Any distance from a yard to two miles; but then there is no certainty that a drone from this particular apiary will be the selected one, as there may be other apiaries within a mile or two.—W. B. Webster.

[859.] *Packing Hives.* (H. B.)—Cut a piece of wood the exact length to fit inside the hive, as seen in the sketch. The hive walls are represented at H H. In the piece of wood cut as many notches to fit the bottom rails of the frames, as seen at F, as you intend to send bars in the hive; this keeps the bottoms of the fames from oscillating. Now fix the ends of the top bars by putting a fine screw down through each into the top of the hive-walls; this will make the frames a fixture. If you put nails instead of screws, you will have a fine opportunity of testing the efficacy of Mr. Grimshaw's 'Apifuge.' Now fasten a strip



of perforated zinc over the entrance, remove all the quilts, and fasten a sheet down on the tops of the frames so secure as to be only removed with tools, and so that no bees can possibly escape. You do not say how far you intend to send them, nor when. You must choose suitable weather, so that the bees do not get chilled; and if it is in the hottest of summer you must so pack the lid of your hive *separate* that the railway people cannot put it on, and so smother the bees. Goods train will do if sent in a covered truck, but more care is taken by passenger trains. By taking the extra precaution of binding each comb with two 'foundation fixers,' bees so packed have been carried on a three hundred miles' journey in the month of August by—Amateur Expert.

[859.] *Packing Bees.* (H. B.)—Tie two thin tapes round each frame, as in transferring; nail two pieces of wood along the ends of the frames on top, so as to fix the frames tightly together and prevent them rocking; in place of the quilt, fix a flat board having an oblong hole at least three inches wide, and of sufficient length to cover all the frames, a strip of perforated zinc being tacked on top to cover same; fix a piece of the same material over the entrance, which should be at full width; screw the body to the floor-board and the roof to the body; cord firmly and label 'Live Bees, with Care,' 'Not to be roughly handled, or *thrown* down.' More ventilation will be necessary in warm weather by increasing the size of the hole in the board on the top of the frames.—W. B. Webster.

Queries.

Queries and Answers are inserted free of charge to Correspondents When more than one query is sent, each should be on a separate piece of paper.

Our readers will greatly oblige us by answering, as far as their knowledge and observations permit, the Correspondents who seek assistance. Answers should always bear the number and title placed against the query replied to. Any queries unanswered in this way will be answered by the Editor and others.

[866.] *Water for Bees.* Would some bee-keepers kindly tell me how I can make a watering-place for bees that would look a little ornamental, as well as being useful, and they would much oblige—J. F.

[867.] *Bell Glass to hold 35 lbs.* Will any of your readers give size of bell-glass inside measurement to hold 35 lbs. of honey-comb worked in it?—A Subscriber.

Echoes from the Hives.

Keswick.—Supplying Bees with Artificial Pollen.—The weather here has been most favourable for our little pets. We have had a few dull days, but as many bright and sunny. Bees have made the best of it, though there has been very little to be done in collecting natural pollen. Palms are not yet quite in bloom; crocuses are the only plants that are of any value to the bees. I have given them flour in crocuses, but filling them with artificial pollen occupies too much time, so, as soon as they were working well on the crocuses, I made some little cups out of yellow paper, and put a crocus flower in them to attract their attention. These artificial cups I make about an inch in diameter, and a little more in depth, but it does not matter about the size; when larger they hold more flour. They are much better than crocuses when a few scores of them are planted here and there among the natural blooms; the bees collect it out of them much quicker, and at the same time there is no waste as with the flowers. I noticed some of my best stocks going in their hives at the rate of ten bees per minute laden with this artificial pollen. These cups are simply made by clipping pieces of paper 3 × 2½ inches, take something the shape of a trowel-haft, lap one half of the paper round the tapered end, and twist the other, and it is made. A small piece of stick can be tied to it, or it can be stuck in the soil without. This will be a nice occupation for the lady bee-keepers.—R. Philipson.

Swanmore, Bishop's Waltham.—I am glad to report on the whole fairly favourable weather for the bees. On many days during the past fortnight they have been enabled to take good, healthy, cleansing flights, and to-day, March the 9th, I see they are carrying pollen—a favourable sign at this time of the year. I have seen a good many stocks during the past week or so, and I am very glad to note that as a rule bees in this district have wintered well; in my own no trace of dysentery, or in fact anything wrong. I find, however, that the consumption of stores has been considerable, and feeding will shortly have to be started in some cases; I am not, however, an advocate for *early* feeding, except in cases of necessity.—H. W. West.

East Yorkshire, Beverley.—My bees, fifty-eight stocks, have wintered well without a single loss, notwithstanding that nearly a dozen of them are small lots with young queens in makeshift hives, and during the great storm we had in late autumn several of these were either blown over or had their covers swept off with the gale, and four of them had all their quilts and coverings blown away, leaving the bees exposed to a downpour of rain; still they are looking healthy, and have been carrying in pea-flour in quantities during the last week or so. These nuclei are

kept, of course, to unite to any stocks that may chance to become queenless; but should they not be required for this purpose I shall have no difficulty in building them up into strong colonies by the time of the white clover honey harvest. Those colonies, thirty in number, which were at the heather are remarkably strong, and have been breeding ever since the frost and snow left us early in January. Mine are English bees, which for honey gathering and sealing, quietness under manipulation, freedom from robbing, and hardiness, there are no foreign bees to compare with them.—F. Boyes.

Ripon.—Invertible Hives.—I have just come in from shading my hives and spreading hay round about them, as we have had a very deep snow last night, and the sun is now shining bright and hot. My fourteen hives have wintered well on my plan (see *B. B. J.*, January 20th), and I do not see any difference between those in double or single-walled hives. Talking about hives, I have never seen anything, while mentioning invertible hives, about the upward slope of the cells. We used to read about 'beautiful provision of Nature,' 'worderful instinct of bees,' in that the cells all had this upward slope to prevent the honey running out. Now it is proposed to invert the cells, what will be the result? I should say thin honey would run out, and the bees, after disgorging it, will have to make a clean bolt before the honey follows them. Nothing would induce me to use an invertible hive, or even section crate. I never have any difficulty in getting my sections well filled, and without pop-holes, but then I keep my bees unusually strong (see *B. B. J.*, January 20th), and that is the whole secret of it. I had dozens of sections last year that I could not tell the top from the bottom of. But the times go very fast now, although we have already gone back to the crown-board, or rather American-cloth, which has the same effect, viz., stopping upward ventilation. Some years ago we were told that the crown-board was the cause of dysentery, and I believe myself that such was the case, but no doubt we shall hear more about the enamel-cloth in times to come. Dysentery, as we all know, is caused by dampness, and if you had a *large* room badly ventilated, and with a *small* fire, it would probably be damp. In the same way as a small fire will not warm or dry a large room, so the heat from the bees will not warm and dry a large hive, and I therefore prefer the ordinary quilt, with a much-contracted hive—seven Woodbury frames—for wintering, and I never have dysentery in my hives, although I do not use cork, or any other cushions, and many of my hives are of only half-inch board.—Arthur J. H. Wood.

The Apiaries, Glenluce, Wigtownshire, March 9th.—Travelling south this morning from Glasgow to pay my brother's apiaries a visit, I have just arrived, after a somewhat long and wearisome journey and intense cold, notwithstanding the day is lovely with bright sunshine overhead. All my brother's bees have wintered well, and to-day they are busy working on the crocuses and snowdrops, carrying in pollen. I examined fifty stocks, and found the bees very healthy and breeding. Should the season turn out good, we may expect to hear of some good results from this district. All my brother's bees are the common blacks, his hives being mostly made for extracting on the storifying or 'tiering-up' principle. The apiaries, which are considered the largest in Scotland, are at all times open for inspection, and those visiting the locality will find it instructive to give those apiaries a visit and learn the method pursued by Mr. Wm. M'Nally, in Scotch bee-keeping.—J. D. M'N.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

J. B. S.—*Bees Starved.*—Your bees have died of starvation. In their chilled and weakened condition they were unable to leave the cluster to take advantage of the proffered candy. Your assistance was rendered when it was too late.

O. B. T.—'*Brood Chamber—Shave off.*'—We do not find any reference in our issue of January 27th to the subject of the above heading—nor in any recent number. If you refer to stimulation by uncapping sealed honey near the brood-nest, it may be done now, at any time during fine weather, by turning back the quilt, and uncapping a few square inches of comb above, or on either side of the brood-nest, close to the cluster of bees. Breaking the caps of the cells by scratching will do equally well.

E. W. P.—*Removing Hives.*—If your bees are in frame-hives procure frames, made of laths, to fit the tops of your hives and tack upon them strong coarse canvas. Remove the quilts and screw down the canvas-frames on the tops of the hives, having first closed the hive-entrances. A strong screw, on each of the four sides of the hives, driven into the floor-board will render all secure. Each hive should be 'corded' in the manner of a box, for convenience in carrying, and must travel right side uppermost. If skeps, invert, tie canvas over the mouths and let them travel inverted. See also 'Packing Hives, p. 122.

W. Mitchell.—1. *Bees.*—The bees marked 3 are but a slight remove from black. Supposed Palestines are hybrids, far removed from pure. Supposed Italians are but little different to blacks. When dead, bees are always shrivelled up, but if forwarded alive in Benton, or similar cage, a more satisfactory investigation could be made. 2. *Simmins' Hive Cover.*—You will find the cover as made for hive 17½ in. square will also do for 17 in. frame-hive, if the outer dimensions do not exceed 19 in. If larger, then add the greater length required to *both* long and short side. Cut one piece carefully, and then mark off your board with that, reversing each time. For mitres bevel off to ⅜ in. on underside.

C. A. J.—*Removing Frames from Full Hive.*—If the foundation is properly fixed by insertion in saw-cut or otherwise, and the hive is perfectly level, the comb will be built evenly by the bees. To secure the correct distances between frames many devices are employed, such as staples, broad shoulders, metal ends, &c. To overcome the difficulty of removing the frame from a very full hive, make the hive wider (or longer) than the ten frames required, and insert two division-boards, one on each side, and fitting close all round; and then, by removing one of these when examining a hive, you obtain space and avoid all danger of injuring your bees or your queen.

Westbourne.—*Straining Extracted Honey.*—If the honey is thick from suspended pollen no amount of straining will clear it. If it is required to remove the fragments of wax, if left at rest for a few hours they will float, and can be skimmed off.

W. F. A.—1. *Stocks Travelling by Rail.*—The safety depends upon the packing. Skeps should be tied over with cheese-cloth or paper-hangers' canvas, not with sacking or any close-textured material, and travel upside down, the top resting upon a ring of hay or straw to prevent jarring; a rope put round to form a handle to lift by is an addition to the chance of safety. Bar-frame hives must have the quilts, &c., removed, and replaced by a square of open material, the frames kept from moving by two slots screwed firmly across the whole of them, the entrance closed by perforated zinc. If pads of hay enclosed in canvas are fixed to the bottom boards to prevent jars, and rope handles to lift by, it will be all the better. See above, reply to 'E. W. P.' 2. *Cost of Carriage.*—You had better inquire at the station at which the bees are to be sent or delivered.

H. Mee.—*Queen found alone.*—It is a case of robbery, the other bees having been killed or joined the robbers. Keep the queen warm, with a few workers to take care of her, and some food, and she may survive to be united to another stock which you may find queenless.

T. R. Garton.—The standard frame of the B.B.K.A. is 14 inches long by 8½ deep, the top bar being 17 inches long, ⅞ths of an inch thick, the bottom bar ¼th, the side bar ¼th, the width being ⅞ths of an inch. Between the bottom of the frame and the floorboard a passage of ⅜ inch should be left. The distance between the tops of frame and the rack should not be less than ¼th, and not more than ⅝ths of an inch. Number of frames should be from ten to twelve, according to district. The size of frames arrived at, you will be able to ascertain the dimensions of the

frame-block; you will find very full directions for making frame-blocks in *British Bee Journal*, Vol. III., page 6.

Wax.—Galvanised piping will not be deleterious to the wax.

M. H.—*Spreading Brood.*—Under no circumstances must you spread the brood now; wait until the middle of April, and even then it is a risky operation for an amateur. Do not change the bees from one hive to another until warm weather sets in. In doubling, the combs without the bees, but with brood and eggs, are added over another strong stock; this must be done just before the honey-flow commences, the bees shaken from such combs being treated as a swarm; that is, supplied with foundation as you have no spare combs.

Wheatfield.—1. *Eggs.*—It is an established fact that the eggs to produce either queen or worker are identical. 2. *Royal Jelly.*—It is a peculiar—we might almost term it lacteal—secretion of the worker bees. 3. *Queen Depositing Eggs.*—The extremity of her body is inserted into the cell. 4. *Use of Formic Acid.*—This statement of the gentleman has been greatly ridiculed, although he does not say that formic acid is used in capping the honey-cells, but simply injecting it into the honey contained therein.

Dumfries.—1. Yes. 2. Of no use, it being much too early to get the queen fertilised. 3. Unite the queenless stock to another having a queen. 4. Such hives are too cumbersome, and you would do well to discard them. Out-of-door wintering in single chaff hives—*i.e.*, double-walled hives packed with chaff—is successful in North America and Canada, although cellar wintering is much more general. We should very much like to know how you would succeed if you could possibly try this latter plan in your district.

Ignoramus.—Your bees have died of the disease called *Bacillus Gaytoni*, or *depilis*. See reply in our last issue to 'C. A. T.,' p. 112.

W. T.—1. *Dry Sugar Feeding.*—The important thing is to get a sugar which is as far as possible free from chemicals as well as from those dyes which are used to make sugar bright yellow or snow-white. For dry sugar feeding the order of merit might thus be arranged,—Porto Rico, Barbados, Jamaica, and such other old-fashioned raw sugars. If therefore, as you say, you have a difficulty in procuring Porto Rico, proceed to Barbados, and so on. 2. *Preventing Queen from ascending into Supers.*—The use of excluder zinc under the sections is for many cogent reasons undesirable. Allow not less than a quarter of an inch and not more than three eighths between the rack and frames.

F. W. C., *Lismore*, and R. Philipson, *Keswick.*—The heath forwarded is *Erica carnea*.

An Amateur.—1. The terms 'bar-frame hive' and 'moveable-frame hive,' apply to the same kind of hive. 2. The Cowan hive is obtainable from C. T. Overton, Lowfield Apiary, Crawley, Sussex, to whom apply for prices.

H. W. Perkins.—Robbers attacked your hive in great numbers, and the bees, unable to defend themselves, were obliged to succumb.

W. H. A.—1. *Transferring*—It is sometimes recommended that this should be done twenty-one days after swarming, when there will be but little brood in the hive; and if you swarm the stock artificially it would be the same. It is not at all necessary, however, to wait for swarming, either natural or artificial, if you take care not to chill the brood. Choose a warm day, and either drive the bees out, or, which is by far the better plan, remove the combs by 'bumping;' lift them out one at a time and tie them into the frames, shake the bees off the second and succeeding combs on to the first placed in the bar-frame hive, putting each frame of comb into it. As tied in by this plan the brood and bees are not separated for many minutes, and no risk of chilling is incurred, as is the case when all the bees are driven out and not returned until all the combs are tied in, as usually recommended. 2. *Utilisation of Combs stored with Syrup.*—These may be tied into frames and given to the bees, either in the hive or behind the divider, to be cleared out.

Amateur Naturalist.—*Loss of Queen.*—Please refer to 'Useful Hints, p. 118, where you will find similar cases to yours argued at some length. Your hive being queenless, your best plan will be to join it to another.

M. E. M.—We prefer sample No. 1 for dry-sugar feeding. For syrup feeding use Duncan Pearl or American Granulated.

Correction.—Gloucestershire Bee-keepers' Association, p. 104. The local secretary for Bristol district is Mr. J. B. Butler. Mr. H. M. Appleton is a member of the Committee of the Gloucestershire B. K. A., and local secretary to the Bristol district of the Somersetshire B. K. A.

Received from Mr. H. Dobbie, Cringleford, Norwich, a collection of seeds of border annuals, with a packet of Chapman honey-plant.

Received from G. Neighbour & Sons, 149 Regent Street, and 127 High Holborn, their trade catalogue of hives, bees, and appliances, 70 pages.

Show Announcements.

July 11-15.—Royal Agricultural Show at Newcastle-on-Tyne. Entries close May 12. J. Huckle, Kings Langley.

July 20-22.—Lincolnshire Agricultural Society at Spalding. Entries close July 4. R. R. Godfrey, *Secretary*.

August 3-5.—Yorkshire Agricultural Society at York, Secretary, H. L. Rickards, Poole, near Leeds.

Business Directory.

HIVES AND OTHER APPLIANCES.

Abbott Bros., Southall, London.
Appleton, H. M., 256A Hotwell Road, Bristol.
Baker, W. B., Muskham, Newark.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
Burtt, E. J., Stroud Road, Gloucester.
Edey & Son, St. Neots.
Howard, J. H., Holme, Peterborough.
Hutchings, A. F., St. Mary Cray, Kent.
Meadham, M., Huntington, Hereford.
Meadows, W. P., Syston, Leicester.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
Stothard, G., Welwyn, Herts.
The British Bee-keepers' Stores, 23 Cornhill, E.C.
Webster, W. B., Wokingham.
Wren & Son, 139 High Street, Lowestoft.

HONEY MERCHANTS.

Abbott Bros., Southall, London.
Baker, W. B., Muskham, Newark.
Baldwin, S. J., Bromley, Kent.
British Bee-keepers' Stores, 23 Cornhill, E.C.
British Honey Co., Limited, 17 King William St., Strand.
Howard, J. H., Holme, Peterborough.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.

FOREIGN BEES AND QUEENS.

Abbott Bros., Southall, London.
Baker, W. B., Muskham, Newark.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
Benton, F., Munich, Germany.
Howard, J. H., Holme, Peterborough.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
Simmins, S., Rottingdean, near Brighton.

METAL ENDS.

Abbott Bros., Southall, London.
Baker, W. B., Muskham, Newark.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
Lyon, F., 94 Harleyford Road, London, S.E.
Meadows, W. P., Syston, Leicester.
Neighbour & Sons, 149 Regent St. & 127 High Holborn

COMB FOUNDATION.

Abbott Bros., Southall, London.
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Blow, T. B., Welwyn, Herts.
Howard, J. H., Holme, Peterborough.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
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'JONES-HEDDON,' 14/6, made up complete.

" " 17/6, Painted, & with Sections

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	Pub. at.	Cash price.	Post free.
Heddon's Success in Bee-Culture	—	2/0	2/2
Cowan's Bee-keepers' Guide ...	1/6	1/2	1/4
Cheshire's Bees and Bee-keeping. Vol. I.	7/6	5/8	6/0
Modern Bee-keeping	0/6	0/5	0/6
British Bee Journal; weekly ...	0/2	0/2	10/10
Bee-keepers' Record; monthly	0/2	0/2	2/6

&c. &c. &c.

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6 oz. Bottles of Agent—carbolic acid, oil of tar, and water, properly mixed—6d. each.

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SOLE MANUFACTURER AND INVENTOR,

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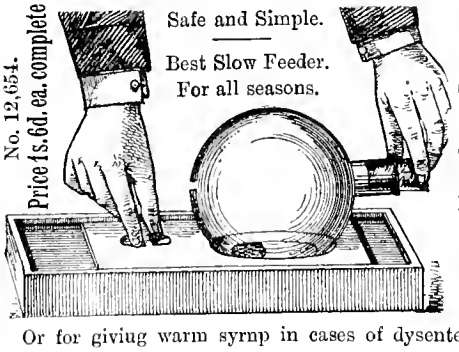
Patent Bee Feeder.—Removing the Flask.

REGISTERED 20th OCTOBER, 1885. No. 12,654. Price 1s. 6d. ea. complete



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THE BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, St. Martin's Lane, W.C.'

[No. 248. VOL. XV.] MARCH 24, 1887. [PUBLISHED WEEKLY.]

Editorial, Notices, &c.

EXAMINATIONS.

Upon reference to the report of the last Committee Meeting of the B.B.K.A. (see page 127), it will be found that the annual examination of candidates desirous of gaining first or second-class certificates will be held in London on Wednesday, April 20th. The examination will be open to all candidates who have already obtained a third-class certificate. An entrance-fee of five shillings will be required from each candidate. Candidates intending to compete must give notice to the Secretary, J. Huckle, Kings Langley, Herts, on or before Wednesday, April 13th.

IMPROVEMENTS IN FRAMES AND SECTIONS.

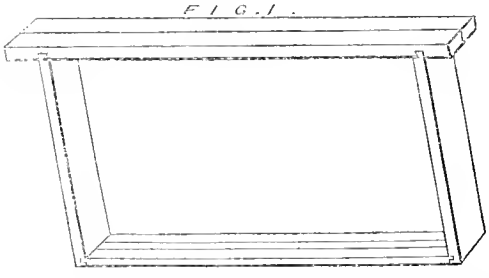
We have had forwarded to us for inspection some frames and sections patented by Mr. James Lee, containing improvements which promise to be of use to bee-keepers. For some years bee-keepers have been using dovetailed sections, or those in one piece with V or square grooves, which, if care were not taken in the folding, sometimes broke and became useless, and unless very accurately made, were often not square.

This invention is an improvement which is a decided step in the right direction; and if Mr. Lee's ideas are correct, which trial will be able to prove, we shall be able to secure some of the advantages claimed for the invertible hive without any of its disadvantages.

The frames, sections, and hives, are all put together without nailing, and the principal improvement consists of a 'continuous dovetailed groove' with tongued ends to fit. By referring to the illustrations the method of construction will be more readily understood. Fig. 1 shows the frame, and fig. 2 is a full-sized diagram of the joint in a standard frame. The top rail of the frame is in two parts, with the dovetail grooves on the underside which receive the ends of the bars tongued to fit these grooves. The lower ends of the bars have similar grooves and receive the bottom rail, which is also in two parts.

For putting the frames together a frame-block is used, and with it the frames are completed, and foundation fixed very rapidly. In using the block one half of the top bar of the frame is dropped into

FIG. 1.



the groove made to receive it; the sides are next added, the dovetails being pressed down as far as they will go. One of the halves of the bottom rail is then slipped into the groove at the bottom of the side bars and pushed down. The foundation is then laid on, covering the half top bar, and passing half over the bottom rail. The second half of the top bar is then pushed down and pressed tightly on to, and securely fixes, the foundation. The other half of the bottom rail is also put in its place, but allows the foundation to hang loosely, to allow of stretching, there being a space of $\frac{5}{16}$ inch full between and also to prevent bulging, Mr. Lee being of opinion that this will secure well-filled frames without any necessity for inverting them. The top bars are also slightly convex on their inner edges so that they give an equal grip throughout when pressed tightly home.

FIG. 2.

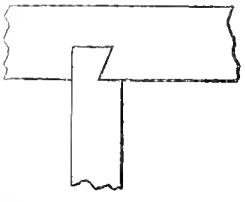
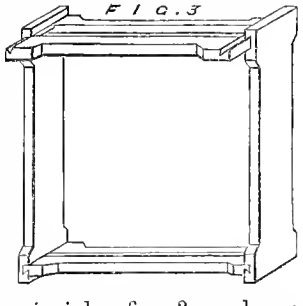


FIG. 3.



Sections are made on exactly the same principle, fig. 3, and are also put together on a block. The top and bottom rails are in halves, and foundation is to be placed filling the sections, and secured by

driving the half rails down. It will be seen that there are passage-ways on all the four sides. In use they are fitted into the frames which have passages cut out of top and bottom rail to correspond with those of sections. These are placed with the longest sides next the top and bottom rails so as to have a $\frac{1}{4}$ inch space between them, and they have a passage-way at the ends, like in those of of Mr. Sambels (see page 59 of *Journal*). The separators, which are also like those shown by Mr. Sambels, have openings corresponding, forming permanent passage-ways for the bees, and with full sheets of foundation perfectly filled sections will be the rule without the necessity of pop-holes. This is a very important consideration, and if it is as successful as Mr. Lee thinks it will be, a great point will have been gained. The frames which hold the sections have the half-bee space at top and bottom, so that they can be used for storifying, the separators spring on, and their points fit into grooves in the side bars. When filled, the sections can be placed on their projecting ends, and in case of a bruised cell the section itself would not get covered with sticky honey, and the foundation showing through the top rail, can be covered with a label. Hives and section-racks are made on the same principle of continuous dovetailed grooves and tongues, and are intended to be sent away in the flat, and put together without any nailing. Mr. Lee has also sent an ingeniously constructed box for the carriage of sections. Three sides fold up, and by means of three loose pieces which are pushed into the grooves, the box is completed.

The workmanship is all that can be desired for accuracy and finish, and the whole method of puting together so simple, that with the block even quite a novice could not go wrong. If they can be manufactured at a reasonable price, and Mr. Lee assures us that they can be made to compete successfully with the Americans, we are sure these improvements will be appreciated by British bee-keepers.

SLOTTED DIVIDERS.

We desire to call attention to the illustration of an article designed by Mr. T. B. Blow, of Welwyn, Herts, which will be found of service to producers of comb honey. It is a slotted divider, for

use more especially with the 4 bee-way sections. By its use the bees have free access to every part of each section, and thus popholes and other imperfections may be avoided. A form of slotted divider was mentioned both by Mr. Corneil and Mr. Jones, but the great drawback stated by them was the expense of production. This, we understand, has been got over by Mr. Blow, who has provided special machinery to produce these dividers. They are produced either in wood or metal. The slots, too, can be made a little wider than in illustration, so that ordinary 2 bee-way sections can be used. These, then, have almost equal advantages with 4 way ones.

BEES-WAX AND ITS CONVERSION INTO MONEY.

By J. Dennler, President of the Strassburg Enzheim Bee-keepers' Association; Editor of the *Elsas Lothringer Bee-keeper;* Author of *Honey as Food and Medicine*, and *Honey and its Use.*

Historical.

Bees-wax was known in ancient times. The Bible tells us of a land flowing with milk and honey; and where there was honey, there must also have been wax. Pliny speaks of white wax, and in the time of Dioscorides wax was rolled into sheets after a method described by him.

At that time materials for lighting made out of wax fetched a high price; they were used at divine service, and the consumption which was at first comparatively small, was afterwards increased by the spread of Christianity. The bleaching of wax was at that time followed as an independent trade, and one sees how extensive it was by the fact that towards the end of the seventeenth century there were in Hamburg above fourteen bleaching-houses for wax. Certainly, with the exception of oil and tallow, as well as the inevitable torch, no other material for lighting was known except wax, and wax could only be used by very rich people.

Even princes who allowed themselves this luxury (as it was then held) were accounted extravagant. But, besides for tapers, wax was used in still larger quantities for the representation of artificial flowers and fruits, which were much used as ornaments for rooms, for artificial flowers made of stuff were not then known.

The Reformation dealt a great blow to the wax trade, in that the Evangelical Church did away with tapers at their divine service.

By the introduction of sugar bee-keeping was decreased still more, and the production of wax was reduced to a minimum. As important competitors of wax, there appeared in trade the wax obtained from various plants and minerals, such as stearine, paraffine, kerosine, and others, which lowered still further the price of bees-wax.

Germany has always produced a very much-prized wax for technical, medicinal, and artistic uses, as well as the various Austrian provinces and Switzerland. Turkey is said to produce the best of all known sorts of wax. Turkish wax is also the dearest; usually bright red in colour. France produces a large quantity of splendid wax. Closely following the French comes the Spanish, in cakes of from $2\frac{1}{2}$ to $3\frac{1}{2}$ lbs. in weight. Italy produces large quantities of excellent wax. Of the various kinds of wax other than European, the West Indian, Egyptian, and Barbary wax are highly prized.

The Production of Wax.

Bee-keepers, and amongst them Swammerdam, Maraldi, Réaumur, and others, were for a long time of opinion that the bees collected the wax directly from the flowers (Swammerdam: *Biblia Naturæ;* Maraldi: *Observations sur les Abeilles; Mémoires de l'Acad. des Sciences,* 1712; Réaumur: *Histoire Nat. des Abeilles.*) But the experiments of Hunter have shown that the bee plays by no means so simple a part in the production of wax, for this great anatomist, as long ago as the year 1792, gave a description of the segments of the bee's abdomen, by which the wax is separated into small scales (*Philosoph. Trans.,* 1712), an observation which Huber of Geneva confirms in his *Nouvelles Observations sur les Abeilles, II.,* chap. 1. Already in 1864 (1664?) Martin John had made the same observation.

(*To be continued.*)

ASSOCIATIONS.

BRITISH BEE-KEEPERS' ASSOCIATION.

The first meeting of the newly-elected Committee was held at 105 Jermyn Street, on Wednesday, March 16th. There were present the Hon. and Rev. H. Bligh, the Rev. Dr. Bartrum, the Rev. F. G. Jenyns, the Rev. F. S Sclater, the Rev. G. Oddie, Captain Campbell, H. Jonas, J. M. Hooker, W. O'B. Glennie, Treasurer, and the Secretary. Letters were read from the Rev. J. L. Seager, the Rev. Geo. Raynor, Captain Bush, and Dr. Walker, regretting their inability to be present.

It was resolved unanimously that Mr. T. W. Cowan be appointed chairman, and the Hon. and Rev. H. Bligh vice-chairman, for the ensuing year. The following sub-committees were appointed:—Finance: the Rev. Dr. Bartrum, the Rev. F. G. Jenyns, and Mr. H. Jonas. Educational: the Hon. and Rev. H. Bligh, the Rev. Dr. Bartrum, the Rev. Geo. Raynor, and the Rev. F. G. Jenyns. Exhibitions: the Rev. F. S. Sclater, the Rev. J. Lingen Seager, Captain Bush, H. Jonas, and J. M. Hooker. County Associations: the Rev. F. S. Sclater, the Rev. J. Lingen Seager, Captain Bush, Rev. G. Oddie, and Dr. Walker.

An application from Mr. H. Bunbury, of Bury St. Edmunds, requesting the B.B.K.A. to undertake an exhibition of hives, honey, &c., in connexion with the Suffolk Agricultural Society in June next, was considered. It was resolved that Mr. Bunbury's application be acceded to subject to terms to be arranged. The Exhibitions Sub-committee were requested to prepare a suitable schedule in accordance with the amount proposed to be expended.

The following resolution passed at the Annual General Meeting of the members, was referred to the Exhibitions Committee, with the request that they should report thereon at an early date, viz., 'That the Committee be requested to draw up a form of rules for exhibitions, with a view to establishing uniformity at all shows throughout the counties—a recommendation being added that shows should be advertised as held under the B.B.K.A. rules.'

It was resolved that the date for the annual first-class examination to be held in London should be fixed for Wednesday, April 20th, the date of the next quarterly meeting.

MIDDLESEX BEE-KEEPERS' ASSOCIATION.

Committee meeting on the 16th, at 105 Jermyn Street. Present, Hon. and Rev. H. Bligh, in the chair, Major Fair, Dr. Raynor, Messrs. Jonas, Kennell, Gunn, Hasluck, Campbell, Leach, and Graham.

The general routine business having been disposed of, it was resolved that the M. B. K. A. defray the expenses of a lecture on bees to be delivered at Southgate by Mr. Sambels on the 24th inst. That the silver and bronze medals of the B. B. K. A. be allotted to the N. E. Province for competition this year at a show to be held at Palmer's Green on the 8th and 9th July, in connexion with the Wood Green Horticultural Society's Show, and that 4*l.* be added thereto towards additional prizes.

The following representatives were elected to serve on the Committee of the B. B. K. A., Dr. Rayner for N.W. Province, W. M. Graham for N.E. Province.

SURREY BEE-KEEPERS' ASSOCIATION.

On Saturday, 12th inst., the above Association held their eighth annual meeting at the Royal Arms Coffee Tavern, North Street, Guildford. There was a large attendance, and John C. Ramsden, Esq., of Bushridge Hall, one of the vice-presidents, took the chair. Amongst those present were Mrs. Maclear, Messrs. S. Wellings, F. H. Lemare, and J. Harrison (district secretaries), Mr. Thos. Chapman (chairman of the committee). Mrs. Tickner, Mr. E. Daw, and Captain Campbell, were also present.

The Secretary (Captain Campbell) read the report of the Committee, from which it appeared that 140 new members had joined during the year, and the Association now numbers 420 subscribers and donors. The county was divided into districts, of which ten are already organized, including Guildford and Godalming, Croydon, Sutton, Leatherhead, Haslemere, Abinger and Wotton, Cranleigh, Chobham, Camberley and York Town, East Molesey and Surbiton. Bee and honey shows and lectures had been held at various localities during the year, besides the annual county show at Leatherhead on the 31st July last. The Association also took part in the National Exhibition of British honey in the Winter Gardens of the Albert Hall, South Kensington, when a magnificent display of British honey from nearly all the counties of England was collected, and at which fifteen bronze medals were awarded to the county of Surrey, besides the silver and bronze medals and certificates of merit of the British Bee-keepers' Association for the Leatherhead show. The financial statement was then read, showing a sum of 8*l.* 16*s.* 3*d.* due to the treasurer, but with assets to the value of 37*l.* in property of the Association. The report and statement of accounts were adopted and officers re-elected, and after the usual vote of thanks to the Committee, office-bearers, &c., the Chairman presented the medals to those of the exhibitors that were present, including Captain Campbell, amidst the cordial cheers of the meeting. Mr. W. B. Webster of Wokingham was then invited to exhibit and explain some inventions and appliances in bee-keeping, and described some new methods adopted in bee-culture. Coffee and tea were served, and after some pleasant conversation on bee matters, the meeting concluded with a hearty vote of thanks to Mr. Webster for his interesting remarks.

FORMATION OF EAST LOTHIAN BEE-KEEPERS' ASSOCIATION.

On Friday, March 4th, a meeting of those favourable to the formation of an association for the purpose of promoting the study and practice of bee-keeping was held at Haddington—the Rev. John Kerr, M.A., Dirleton, in the chair. The Chairman, after explaining the objects of the meeting, stated that he had already received letters from over thirty gentlemen in different parts of the county, who were ready to join such an association as was proposed, and that, in addition, he was aware of others being favourable, who had not yet sent in any letter to that effect. Besides the primary purpose of such an association, it was also intended to arrange with certain merchants in the different towns in the county to dispose of the honey grown by members of the association, so that bee-keepers who were members might have no difficulty in finding a market for their honey. The meeting then agreed to form an East Lothian Bee-keepers' Association, and appointed office-bearers as follows:—Hon. President, Sheriff Shirreff; President, Rev. Mr. Kerr, Dirleton; Secretary and Treasurer, Mr. James Ovens, Haddington; who along with the following gentlemen—Messrs. J. Stirling, and Adam Paterson, Haddington; Bertram, Gifford; G. T. Clarke, Kirklandhill; and Barnes, Innerwick—form the committee. After hearing several letters, all advocating the formation of an association, the meeting considered the draft rules of the Association, which were remitted to the committee for revision and for presentation to a future general meeting of the Association for final adjustment. Some conversation then took place among those present on the proposal contained in the rules to have shows of honey and exhibitions of bee-keeping appliances in connexion with the shows of the East Lothian Agricultural Society and the Horticultural Society, of which the members present heartily approved.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Upper St. Martin's Lane, London, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *King's Langley, Herts (see 2nd page of Advertisements).*

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

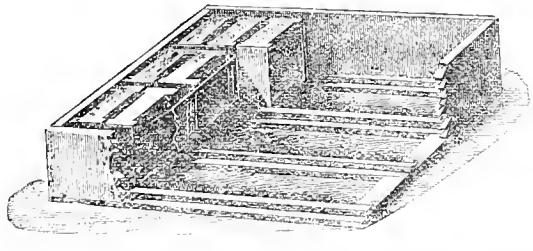
SECTION-CASES AND SECTIONS.

[868.] The time is fast approaching, notwithstanding the frost and snow we have had during the last week, when bee-keepers should lay their plans and provide themselves with all the requisites for the coming honey season. It is not an uncommon thing to put off obtaining these until they are wanted. The bees swarm, and the supply dealer is written to and expected to send hives at a minute's notice in which to put the bees. The honey harvest finds us without sufficient section-cases or sections with foundation fixed ready to use when they are required, and a quantity of the early and best honey is put in the brood frames, the queen has not sufficient space of comb in which she can lay, and the desire to swarm is the result. This fever once started it is difficult to stop, although had additional room been given at the proper time, either by adding another storey of frames for extracting, or by tiering up crates of sections, in most cases it would not have arisen; the bees would have been content to have gathered all the honey they could if they had supers to put it in and the queen had not been crowded, and had sufficient space to lay in.

Those who intend working for honeycomb, and have not sufficient crates for tiering up, will do well to decide at once the sort of crate, the size and width of sections, and whether they will use separators or not.

There has been a great variety of section-crates exhibited during the last summer, and several of the best have been illustrated in the *B. B. Journal*.

I now propose to call attention to what appear to me the good or weak points they possess, and I also send a woodcut of a super-crate, in which I think most of the



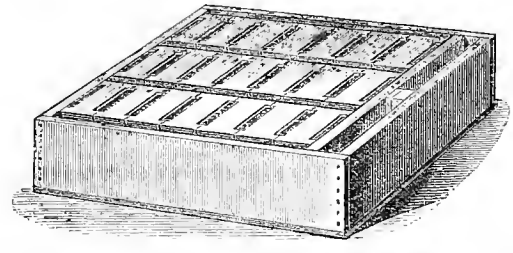
desirable parts are contained, and which I will describe hereafter.

The crate Mr. Dines exhibited at Norwich, and of which you gave a cut on page 508, was one of the first that claims the advantage of being capable of inversion. The depth of case gives a half bee-space at top and bottom in addition to the depth of the section used. In preparing for putting sections in position, the case is placed over a piece of wood of the thickness of the half bee-space required; the sections and separators are then adjusted, and are kept in position by a board, which is tightly pressed against the sections by screws; this is the only support they have. Should there be the least shrinkage of the sections, they would drop on the excluder if one is used, or, if not, then on the frames, crushing any bees there may be between. The screws are also liable to become set tight.

The crate exhibited by 'Amateur Expert' at the last Conversazione, and illustrated on page 59, also depends entirely on the screws for keeping the sections in position. The bee-space is kept by having a loose rebated frame, in which the case stands, keeping it the proper distance from the excluder or frames below, the case proper being exactly the same depth as the sections used. This case has pieces of wood on the sides, between which the separators go, and, being notched out to correspond, form passages for the bees to pass along. There are also two holes in the separators opposite to where the sections touch each other. This improvement of the separators by having these holes in it is not a new idea. I pointed this out on page 558, as it was previously illustrated by Mr. Greer in *Gleanings* on page 689, but Mr. Sambels tells me he had not seen it at the time he suggested it as an improvement to Mr. Corneil's super. There is a difficulty in getting the separators in and out without removing several of the sections, and in taking out sections they would be likely to fall and irritate the bees.

Mr. Corneil's super was well described at the time it was illustrated on page 531, and is to my mind the best invertible crate for $1\frac{1}{2}$-inch sections, but it has the same difficulty as that of 'Amateur Expert' in the removal of separators.

Mr. Neighbour's invertible super crate is a very good one; the sections are supported by metal ribs both top and bottom, and whichever way they stand can with a little care be inverted; even without the screws the sections cannot drop and stop the bee-space, and is readily tiered up. This is one of the best; but it lacks the bee passages, which I think a great point. The section crate here shown is similar to that illustrated in *Modern*



Bee-keeping; but by adopting the separator of Mr. Greer, without otherwise altering the arrangement, we have a crate possessing *all* the good points contained in the others, except that of reversing. It will be seen that the sections do not touch each other or the ends of the crate, being kept apart by quarter-inch strips of wood on which the separators rest. These separators have holes through them, corresponding to the spaces between and at the end of sections, and can be removed at pleasure if sections are used. Having entrances on the sides as well as top and bottom, in addition to the passages, the bees can cluster round all the sections, and pass from one to the other without difficulty, and thus do away with their need for popholes to get from one side of the comb to the other. They can be tiered up three or four high. With regard to sections, I think that the best width for them is $1\frac{3}{4}$ inches wide, with entrances on all sides; and I would on no account advise the giving up of separators. If, however, some bee-keepers would like to try without them, they must be very careful that the sections stand perfectly level on the hive.—J. M. HOOKER.

CYPRIANS.

[869.] I have to thank the Editor for his reply to my request, but I am afraid he did not quite understand me. He should know that I had not the slightest intention of implying that any dealer would supply hybrids for

pure queens, and I am quite sure none of the readers of the *Journal* will consider that I so intended it to be understood. What I did mean is only what I know to be the case. It is a fact that many obtain one or more pure queens in the first instance; they rear others from these, and get them hybridised, and yet without intending to give a false impression, speak of these as of the pure race.

The Editor tells us that for two years it was the rule for his apiary to consist of pure Cyprians; thus it is left for us to understand that during other years my application would be found correct, and that it was the rule for hybrids to predominate. However, what I wish to arrive at is the comparative merits of the pure and hybrid bees. For my own part I do not look upon Cyprians as suitable for all purposes, but value them very highly for extracting, and more than any kind for crossing with other races. I am pleased to find that the Editor is at one with myself as to the superiority of home-reared queens, but there are very many who cannot be satisfied unless they have an imported queen. Of course one must import for breeding purposes in the first instance, but those who obtain only one or two of any kind rarely have the opportunity of thoroughly testing any particular race, and as a matter of fact the number who can or do secure pure fertilisation is very small indeed.

Though I have not under my own management found Cyprians to vary in temper I have given the opinions of others, and have shown that the 'better selection' desired by the Editor is to be obtained by establishing a permanent apiary in Cyprus under such efficient management as Mr. F. Benton could give, if only he could rely upon someone to take charge during his enforced absence, but this unfortunately he has not yet been able to do. Such selection can be made at home, but as yet many bee-keepers cannot be so persuaded. In quoting Mr. Cheshire's earlier experience with Cyprians the Editor only states what that gentleman has himself recently told (Vol. II. *Bees and Bee-keeping*, Part I.), where also will be found Mr. C.'s present opinion of them, which is decidedly in favour of Cyprians as imported at this day. —S. Simmins.

[It is very difficult, indeed, to understand what the gentleman mentioned really does mean. He gives nothing but what was already known, both as regards their management and temper, but this is what he does say: 'But I "speak that I do know and testify that I have seen" in adding that, although now and again a vicious Cyprian stock is met,' &c., and 'Cyprians have faults in our climate, as well as excellencies, quite outside the question of temper; but their surpassing loveliness of form and colour would induce some to keep them, especially if their disposition could be reckoned upon, and to this end irritable colonies, whenever discovered, should be re-queened.' If his opinion was, that they were as amiable as our correspondent suggests, there would have been no occasion to say anything about *their disposition being reckoned upon*. We usually consider amiable people those whose tempers can be depended upon, and those whose bad tempers may break out at any unexpected moment as the most dangerous of all, whatever their other qualities may be. Bees are no exception. Still, Mr. Cheshire may consider bees with such treacherous dispositions amiable. Mr. Abbott's experience (page 120 *B. B. Journal*) is both instructive and interesting, and should serve as a caution.—Ed.]

CYPRIAN BEES.

[869.] Readers of the *Journal* will be greatly obliged to Mr. Abbott for his letter respecting these bees—personally I was delighted to read it. I think Mr. Abbott hit the nail on the head when he spoke of weak colonies being easily handled; this is so with all bees I fancy, but when we get a hive crowded, say on twenty frames, if they have any nastiness about them it is then they show it.

I had an idea we had done with these bees years ago; what is it that is bringing them to the front again? their good qualities or the dealers? The same may be said of the Carniolans, they were dismissed long ago, but it would appear that as soon as any one gets a quantity of them for sale we hear of them as being very active, very hardy, and great honey gatherers.

What has become of the British bee? not 'black,' please, we do not call a brown horse 'black;' and what has our native bee done that it is no longer worth mention in the *Journal?* Is it not too bad that dealers should be trying all they know to drive it out of the country simply because they cannot make it profitable to sell the queens? and what do people think of themselves who purchase these foreign bees and locate them against their neighbours' apiaries, and by so doing turn all the bees in the district for miles round into hybrids? and we know what hybrids are. Is such a proceeding considered a neighbourly act? Bee-keepers must have a very queer sense of justice if they think so.

Is it not time someone spoke out about these things? and why do we nearly always read of these foreign bees in the *Journal* as 'golden bees?' No doubt they are golden to those who sell them, but I fear the purchasers soon find the gilt rubbed off. It seems to me that unless these bees have something more than colour to recommend them the public will at last get their eyes open (they have had them closed frequently by these 'insinuating devils') and will in future use more caution in introducing them into their gardens, except of course those who like well stinging, plenty of robbers to annoy their neighbours and themselves, with plenty of queens (pure no doubt) to sell at exorbitant prices, and so bring discredit and disgust on bee-keeping generally.—F. Boyes, *Beverley.*

GLASS HIVES.

[870.] It seems to be taken for granted that Maraldi was the inventor of glass hives. Was he? I doubt it. It is true that M. Figuier in *Les Insectes* says, 'All the fables, all the hypotheses spread about and cherished by the ancients respecting these industrious little insects were dissipated in a moment, when, by the *invention of glass bee-hives, first* made in the beginning of last century by *Maraldi*, a mathematician of Nice, we were enabled to *observe* their operations and habits. Thanks to the *invention* of Maraldi,' &c. Arthur Murphy, the well-known translator of Tacitus, wrote at the latter end of last century a poem, *The Bees*. It is simply a translation into verse of the fourteenth book of the *Prædium Rusticum* of Vanière the Jesuit. In the preface, Murphy says, 'Maraldi, a famous French philosopher, was the first that invented glass hives, and through that transparent medium was able to observe the manners, the genius, and all the labours of those wonderful insects. He published his account in the *Histoire de l'Académie Royale des Sciences* on the 6th of November, 1712. Vanière professes to have collected his materials from Maraldi, and has done them ample justice.' Both in the poem itself, and in the *précis* of it, it is asserted that the bees carry the wax upon their thighs, and, in fact, Maraldi and he knew no better than their predecessors. I possess a little work by the Hon. Robert Boyle, Fellow of the Royal Society, entitled, *A Disquisition about the Final Causes of Natural Things*, and printed in 1688, written really to oppose the philosophy of Descartes. There is a passage in this work which seems to prove that Robert Boyle had a glass hive in his house some twenty-four years before Maraldi's was heard of. It is this: 'Divers strange things are deliver'd, not only by poets, but by more credible writers, about the wonderful sagacity and government of bees, in point not

only of economy, but of politicks too. But tho' I shall not build anything upon the authorities that I myself suspect, yet, having had the curiosity to keep for a good while in my closet a transparent hive, whence there was a free passage into a neighbouring garden, and having thereby had the opportunity to make frequent observations of the actions of these little animals, and particularly to see them at work, about making their combs and filling them with honey, I confess I discover'd some things that I did not believe before, and was induc'd to look upon them as very fit instances of creatures endow'd with natural instincts and providence.' Now two things are clear from R. Boyle's work—1st, That he had a glass hive (perhaps he invented it) long before Maraldi; and, 2nd, that he believed, as Maraldi and Murphy did, that the bees *collected wax*, and carried it home on their legs.—J. Lawson Sisson.

FOUNDATION.

[871.] The price of pure bees-wax being now so much higher in price than it was a few years ago, and foundation being so much lower, seems to give one the idea that this contradiction must be the result of either a very 'long' profit having been made in earlier days or a substitute for bees-wax being used now. I am well aware it is so in some cases, but all must not be 'tarred with the same brush.' We are all aware of the absolute necessity of having pure bees-wax only in our foundation. I have had inquiry after inquiry made to me as to the cause of foundation sagging to such an extent as to cause the total destruction of stocks, and where, in response to my wish, I have had a sample of the foundation sent to me, it has usually been found to be adulterated. Mr. O. Hehner in the *Bee Journal* of last spring gave a rough test, which he said at the time was not to be entirely depended upon. I should now like to add to this test another one, which I think if acted upon will prevent any unsuitable foundation being foisted upon bee-keepers and so ruining many of their prospects during the ensuing season. Perhaps the practice of scenting foundation is not of very great moment; foreign wax has not the aroma of English, and the first thing an amateur does when looking at foundation is to place it to his nose and take a long, long sniff. 'What a nose it has got!' is his exclamation. Yes it has, but much too strong and pungent for a genuine odour. So you see some manufacturers must pander to the tastes of their customers a little. The fault of adulterated foundation is its inability to stand the internal heat of the hive at breeding time, and when laden with honey, brood, and bees, down it comes on the floor-board in a perfect 'conglomeration' of wax, bees, brood, and honey. Now the melting point of pure bees-wax is 146 degrees Fahr., and this is where our tests should be directed. If the foundation will stand 145 degrees before it melts it will stand the heat of the hive at breeding time, unless the stock is placed in the broiling sun with entrances nearly closed, under which conditions wax, either pure or otherwise, will melt.

The difficulty is the knowledge how to make this test, and I will now explain how it can be done at a nominal cost. The appliances necessary are,—a thermometer that will register 200 degrees Fahr. or over; this can be purchased for 1*s.* 6*d.* and can be tested as to its accuracy by immersing it in water gradually brought to the boil, and then noting whether it registers 212 degrees Fahr. or if it will not register as high a degree as that try it with boiling spirit—rather dangerous without proper appliances; this boils at 176 degrees Fahr.;—a capillary tube, this can be made, but they are very cheap, by drawing out a thin glass tube made hot in the gas or spirit-lamp; —an empty condensed milk tin and an empty lobster can without top or bottom: this latter is your stove; your fire must be a lamp of some description. Place the lobster can on the table, out of any draught, and put your lamp inside; see that it has ventilation, or it will not burn; now place the milk tin on top and nearly fill it with warm water; have your capillary tube ready, melt a portion of the wax to be tested in an old spoon and fill a portion of the tube; now tie this piece of tube to the bulb of the thermometer with a piece of cotton, plugging the ends of the tube; then immerse it in the water, allow the water to get *gradually* hot, and when the thermometer registers 146 degrees Fahr., if pure, the wax in the tube will assume suddenly a transparent look; it has melted.

You must not with these rough appliances be particular to one degree, but it is sufficient to gain a knowledge as to whether the foundation is fit to use or not. Don't forget that there must be no draught, or your thermometer will jump up and down like a jack-in-the-box.—W. B. Webster.

NOTES ON CARNIOLAN BEES.

[872.] Perhaps the following may be interesting to some of your readers; but I hope to supplement it at some future time with other particulars.

On Saturday last I received, through the kindness of Mr. T. B. Blow, Welwyn, by letter post, ten Carniolan worker bees in a common lucifer match-box. They were, to all appearance, quite dead; but, accidentally placing the box containing them near a window, through which the sun was shining very brightly, they soon recovered and began buzzing and humming about quite joyously. I might here say what struck me at once was their large and powerful-looking wings, and their beautiful and symmetrical appearance. The thorax is entirely covered with a rich pubescence or fluff, like a beautiful sealskin in appearance; the chitinous case of the abdomen is of a beautiful chestnut colour, with rings or bands similar to the thorax in colour, only a shade lighter. Two of the Carniolans were selected, and placed under a thin tumbler glass with two black bees, which I at once took from a hive, selecting a young black and one more advanced in life; they were now supplied with food—the Carniolans having been without since leaving Mr. Blow's apiary. On Sunday evening one of the blacks (the younger one) died, and on the following morning its sister perished. One of the Carniolans died on Tuesday morning, the other during Tuesday night or early on Wednesday morning. Does not this show a great amount of physical strength in favour of the Carniolans? By microscopical and geometrical examination I find the area of wing surface greater in the Carniolans; and, upon careful weighing, that the ten Carniolans weighed twenty grains, while the blacks only balanced sixteen grains.

Mr. Bennett, whom I mentioned in your issue of the 27th January, and who had never seen a Carniolan bee previously, at once saw the distinguishing features I have mentioned, and expressed himself that Carniolan bees and black bees should not be compared for beauty—the blacks being much inferior in this respect.

I think it is one of the first points in beauty of bees the amount of pubescence upon the thorax—and it is only fair to Mr. Blow for me to add, having imported a good number of Ligurian or Italian bees from various dealers in Italy and Switzerland, that the stock I purchased from him surpasses them all in this particular.—T. Bonner-Chambers, F.L.S., *March 5th*, 1887.

JUDGING HONEY, &c.

[873.] I was exceedingly glad to find from the report of the annual meeting of the B. B. K. A. that it is intended to draw up a form of 'rules for exhibition.' The subject of judging honey is a very difficult one to deal with, and probably it would be almost impossible to formulate a code of marks such as has been suggested from time to time in the *British Bee Journal* for colour,

consistency, &c. But I think that this would be a very suitable time for the B. B. K. A. to print (together with the rules for exhibition) a series of hints, which would be alike useful to exhibitors and country judges. It is of great importance that it should be known what are the most desirable points to aim at obtaining when we exhibit at shows, and at present it is almost impossible to know to what standard we should try to attain. These hints might be as short and concise as possible for easy reference, but at the same time should be sufficiently explicit, for example, for an exhibitor to form a clear idea whether he had better send to the shows a light or dark sample of extracted honey, if in other respects his samples are the same. If the committee of the B. B. K. A. would undertake this task I am sure many bee-keepers would greatly esteem their labours. — EDWARD J. GIBBINS, *Neath, March* 4.

DO BEES HEAR?

[874.] This seems to be an undecided question at present. I read on page 58, February 10th, a very interesting discussion on vocal organs of bees by Mr. Grimshaw. I have a strong opinion that bees do not hear; they will respond to the slightest touch or shake, but will not respond to the report of a gun a few yards off. I have often fired a gun close to my hives, which makes no impression whatever, but driving a heavy-loaded wheelbarrow close behind them will at once arouse them. Then comes the question, How do they communicate? which would be very interesting to our readers. Mr. Baldwin gives his experience of trying to make bees raise queens while the queen is present by dividing the hive with perforated zinc, and the bees did not attempt to raise queens. My experience was last summer with a hive doubled for extracting. The hive being very strong in bees at the close of the honey harvest, I thought I would try the plan to make two lots of them a week before I made an entrance between the two storeys, to get the bees a little used to the two entrances. I then lifted the queen with bar into the upper box, placed a square of perforated zinc between the two boxes, and they at once commenced to raise queens. The hive with the young queen has wintered up to the present. The one with the old queen a friend is in possession of, so I cannot form an idea as to the way of their communication. —T. DUNSTER, *Staplehurst, Kent.*

APIFUGE.

'Hang out our banners on the outward walls;
The cry is still "They come."'—*Macbeth.*

[875.] Like King Dick, I find there are two, yea, three Richmonds, in the field.

'Useful Hints' (the calm, respected 'Useful Hints') takes me to task on the suitability of the word 'Apifuge.' Now if he will refer to p. 38, present vol., whereon I answer Mr. A. Green on this subject, he will find me state that the verb *fugio* bears other constructions than simple *flight;* it also means to avoid, forbear, &c.: *res me fugit,* the thing escapes my notice, I do not perceive it, am not aware of it; *populus tamen vidit id quod fugit Lycurgum.* And I used the verb in the sense that bees would *avoid* a substance on which apifuge was rubbed, and *forbear* to sting if they did alight. I am sure your esteemed 'U. H.' would not of set purpose lead your readers into the error that apifuge puts the bees to flight, and so on, for it seems to me that is the only sense his words can be read in. It would in that case be an act of gross injustice to the article which is before the public, and of which much more, I can assure you, is destined to be heard. The simple *fact* is, bees pursue their ordinary avocations when it is used, and take no notice of intrusion. As to the word Kentrapone, or sting-averter, this is trying to knock one bogey down in order to set up a more hideous one with a vengeance. Kentrapone (if that word were adopted) would not *turn stings aside.* I have admitted that there may be a more suitable word than mine, but it has to be found yet, meantime 'Apifuge' will easily carry the burthen of a somewhat lame name. If 'U. H.' will insist on being so intensely literal in his translation,—

Febrifuge does not literally put the fever to flight (a remedy for abating the violence of fevers).

Vermifuge does not literally put the worms to flight (but is a medicine for expelling worms).

Galactofuge does not literally put the milk to flight (a remedy which decreases the secretion of milk).

As Mr. Lyon's actions, in my opinion, do not coincide with his utterances, the only part of his letter I will notice is his last paragraph, wherein he says, 'I am sorry my lotion failed to cure Mr. G., possibly the wound was poisoned with his Apifuge. The lotion is intended to cure the effects of stings, not those of poisonous substances.' Reader, is this not stabbing a man behind his back, is it not a stab in the dark? In his previous letter he insinuated that Apifuge is methyl salicylate, without a particle of evidence. This week he insinuates it is poisonous. Would that some substance were invented as a preventative against the poisoned arrows of our loving fraternity — some scorpiofuge, Mr. 'Useful Hints,' eh?

Well, I suppose I must reply and say that Apifuge is *not* poisonous, and that my hands had *not* touched it. I could retort on Mr. Lyon if I so pleased by opening up the question of 'Ac. Acet.'

'Amateur Expert' (this was the most unkindest cut of all), in a vigorous, manly, stand-up attack upon me, hints that I either have made, or shall make, use of my official position to push the sale of this apifuge, and refers to gratuitous advertisements I have got in the shape of letters to the *British Bee Journal.* Now, since my article was (or intended to be) brought out for sale I have only written *once* on this subject (p. 99, excepting of course my reply to Mr. Lyon's attack on me, to which I was reluctantly driven in self-defence), and this *once* was in fulfilment of a promise made in your columns to report the results of my efforts. I think if 'A. E.' had looked at the prominent advertisement of my agents he would have thought twice, and found second thoughts best, before ascribing to me such meanness as this. Even if such *were* the case, apifuge would only be having accorded to it the same notice which is given to Dick, Tom, and Harry's hives and appliances week by week. I notice that 'A. E.,' too, falls into the error that the new substance is artificial wintergreen. It is not. I am not 'going to sell hardware,' any more than Messrs. Cowan and Cheshire (forgive the comparison) sold hardware by inventing and naming their respective hives and discoveries; therefore my residence in the Birmingham of bee-keepers must be postponed. Did you mean Coventry, 'A. E.?' *Et tu, Brute?*

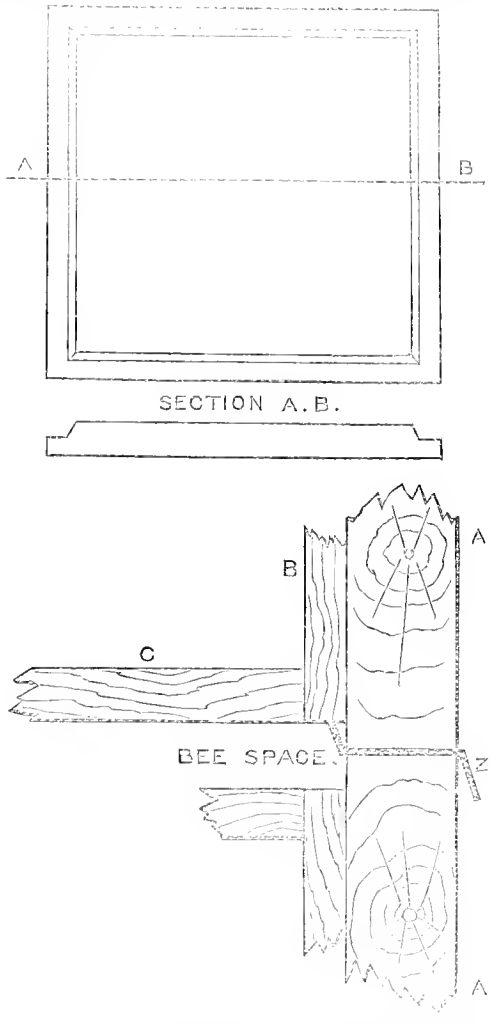
Mr. Cheshire's conduct with regard to his cure for foul brood was my very model, even though it ended for *him* so pecuniarily unsuccessful, which would not have been the case had he not had 'the wreckers on his coast.'

Now if your readers will not again accuse me of seeking free advertisements, I will give you a short history of my conduct as regards Apifuge:—About two months ago I wrote a long article on my experiments and efforts to have made a certain substance, &c. I told your readers everything I could on the chemistry of the how and why, without (then) any mental reservation or equivocation whatever, never thinking of having to baptize the child as well as to bring it into the world. About three weeks after that, at the Conversazione, I had pleasure in submitting the first little drop which had been made (about half-an-ounce) to the B. B. K. A., and this I shared after the meeting with Mr. Stanford, Irish Hon. Sec. I then kept back nothing from you, ex-

cept certain alterations in my formula, saying my happiness consisted in being able to say that the substance could now be produced. Up to that moment I had no thought beyond presenting the discovery to the bee-keeping world. At this point, however, I was compelled to overhear this remark, 'The proper thing for Mr. Grimshaw to do is to get a quantity and distribute it:' —my business engagements forbade this. The next morning, Thursday, I read in *B. B. J.* 'A Disclaimer' from Mr. Cheshire, and (acting upon his example) I went on the Saturday to Southall, and placed the whole question in the hands of respectable agents in whom I have implicit confidence. I hope, however, my results will be different from his.—R. A. H. Grimshaw, *Crag Hill, Horsforth, Leeds.*

BRITISH INVERTIBLE HIVE.

[876.] I noticed H. W. Lett's letter in the *Journal* wherein he asks if Neighbour's British Invertible Hive is watertight at the joints. As I have purchased one of



Device for making Heddon Hive watertight between storeys and for supporting frames.

A, side of hive; B, end bar of frame; C, bottom bar of frame; Z, loose zinc frame between each storey, also support to frames whether inverted or not.

the above hives I am able to say that it is not, neither is the original Jones-Heddon Hive. I have designed a simple device which will make both the above hives watertight, and it will also form a support to the frames whether inverted or not. Please find sketch enclosed, which I hope will make it easily understood.—J. Hall, *Station Hill, Wigton, Cumberland, March* 10.

THOUGHTS ON CURRENT TOPICS.

[877.] I have been thinking that as I had a few moments at my disposal I would send a few lines to the *Journal* in case you may have room for them.

Wax and Honey Imports.—We are very much indebted to the kindness of Mr. Bellairs, and to yourself, Mr. Editor, for the information you from time to time give us in regard to the imports of honey and wax into this country; but it strikes me there is a something which we do not clearly understand respecting these products, nor why the foreigners should be able to send us such a quantity when we here cannot dispose of our stock. It might be interesting to know how much of the wax is animal and how much vegetable; and, again, how much of the honey is manufactured, say, the product of man, and how much pure honey, the product of the bee. The latter is a weighty question just now, when English honey cannot find a market, whilst every large town is swamped with foreign compounds called honey.

Standard Frame.—I think it would be a pity to alter this now, unless some very grave objection can be urged against it. A deeper frame would be much more liable to break down. The only fault I find with it is that it is hardly strong enough, and the top-bar should be broader.

Winter Passages.—I consider these all moonshine if stock are properly looked to in the autumn. I never use them now, and never feel the want of them; they are a source of weakness to the combs.

Invertible Frames.—Novices beware, or you are going to be caught in a trap here; look out for collapse of new combs, endless trouble, and much cost in new frames, &c.

Spring Examination of Colonies.—If all be going on right, let well alone. No colonies should yet be short of food; if they are, it is bad management. First week in May is early enough to remove bees and combs into clean hives; to those who think of doing so now, I say, Don't.—F. Boyes, *Beverley.*

Reviews.

Nouvelle Flore pour la détermination facile des Plantes sans mots techniques, avec 2145 figures inédites. Par Gaston Bonnier, Professeur de Botanique à l'Ecole Normale supérieure, et Georges de Layens, Lauréat de l'Institut (Académie des Sciences). Paris: Paul Dupont, éditeur, 41 rue J. J. Rousseau. Price 4 frs. 50 cs. (about 4*s.*)

It will need no apology in introducing this book to our readers. There is a growing desire amongst our bee-keepers to know something about botany, but it has been a subject not so very easily learnt, and unless the study had been commenced early in life there was very little chance of getting even enough knowledge to determine with certainty the name of a plant. Much of this difficulty has arisen from the scientific language of the books, which has frightened many who could have made the study both agreeable to themselves and others. There are many who do not wish, nor have the time to go deeply into the subject, but who would still like to be able to find out the names of some of the plants they see, if it could be done easily. This is just the book for such.

Some of the prefatory remarks are so to the point that we translate the author's own words. They say:—'When we first commenced the study of botany and wished simply to find the name of a plant we remember the difficulties which we encountered. The little know-

ledge we had acquired before, in reading the elementary botanical works, were hardly of any use for our purpose. In fact, the authors of most of the floras have a special language so mixed up with technical terms, that to find the explanation of them at every moment a special vocabulary has to be referred to. The descriptions are full of scientific Latin and ancient medical terms. It is, so to speak, a new language that has to be learned, and it is the same in every work. This is the principal obstacle which those who wish to occupy themselves with botany have to encounter.'

Many will be ready to endorse these remarks of the learned authors.

Now the book which we have before us gets over these difficulties, and will enable any one with a very little knowledge of the subject to derive much pleasure and pick up instruction in an easy manner.

In the first place all technical terms are avoided as far as practicable, and in the second any words out of the common that are used are explained.

The work consists of 270 pages, and to facilitate reference there are 2145 original illustrations of the special distinctive characteristics of plants. The plan adopted is that of synoptical tables, and inquirers are passed on by easy questions from one to another until they arrive at the name of the species they are examining. Let us, for instance, take a strawberry blossom and see how easy it is to determine its name accurately by means of these tables.

We first refer to the 'General table' on page 19, and we find two questions asked there, namely, Is it a plant with flowers or without? We find our plant has a flower, and the first question resolves itself into two others: Are the stamens and pistils on the same plant, or on different plants? We find our flower answering to the first, and here again two questions follow: Are the flowers solitary or united in clusters? Again the answer to the first brings us to two more, and so on until we get to the end, where we find that our flower belongs to plants with petals separated; and here we are referred to the next table, where, after answering one or two questions, we find the flower belonging to the rose family on page 49. This table, in addition to the questions has illustrations of each genus, and we soon find it belongs to the genus *Fragaria* or strawberry, and on page 51, to which we are then referred, we find the specific name. It takes much less time to find out the name of a plant than we have taken to describe the plan, and we were astonished at the rapidity when we put it to the test on several plants. Our readers may object that we have already used technical terms in mentioning *petals, stamens,* &c., but every word of this sort is explained, and illustrations accompany the explanations, so that a child can understand them. At the end of the book there is an alphabetical index of all the species of plants, and what makes it of special value to bee-keepers is, that all the flowers visited by bees are marked with a *. This from such authors as these is of no inconsiderable value, for M. G. de Layens is well known as a leading, and one of the most observant bee-keepers in France, the author of *l'Elevage des Abeilles,* and who assisted M. Gaston Bonnier in his researches on the nectaries of flowers, especially in connexion with bees. M. G. Bonnier is also well known as one of the leading French botanists, and as author of several botanical works as well as *Les Nectaires* which is one of the most important of those written in connexion with the mutual relations of insects to flowers. Those of our readers who know the French language would do well to get the *Nouvelle Flore* because in it they will find nearly all the plants we have in England. In the British flora there are only about 150 plants not found in France, and of these 100 belong to Scotland and Ireland, so that for England the flora is nearly complete. Of course it contains a great many not found in Great Britain.

We have every confidence in recommending this work, more especially as flowers are so pleasantly associated with bee-keeping. Some of our happiest days have been spent in botanising, and we have found it a recreation as beneficial to health as it is enchanting.

LECTURE ON BEE-KEEPING.—At the Savings' Bank, Faringdon, on Monday evening, March 14th, Mr. A. D. Woodley, expert to the Berkshire Bee-keepers' Association, gave an interesting lecture on 'Bee-keeping,' his remarks being illustrated by magic-lantern slides, exhibited by Mr. E. Wright, who kindly lent his lantern for the occasion. Mr. G. J. Haines took the chair, and there was a fair attendance.

Replies to Queries.

[866.] *Water for Bees.*—(J. F.)—A small ornamental flowerpot-stand, to hold one pot, having a hive trough round the pot filled with clean moss; this has a very nice effect, the moss making a good landing-place for the bees. Fill the trough with water as well as moss, and put a nice shrub in the pot. A small ornamental fountain, the water running over virgin cork and moss, would look pretty.—W. B. WEBSTER.

[867.] *Bell Glass to hold 35 lbs.*—(A Beginner.)—The rule for finding contents of spheroid is

$$\frac{3\frac{1}{7}}{6} \text{ (diameter}^2 \times \text{fixed axis)};$$

therefore for bell-glass will be

$$\frac{3\frac{1}{7}}{6} \text{ (diameter}^2 \times \text{fixed axis)} \div 2.$$

In this case

$$\frac{3\frac{1}{7}}{6} \text{ (12}^2 \text{ ins.} \times 30 \text{ ins.)} \div 2 = 1131\tfrac{3}{7} \text{ cubic ins.}$$

The space occupied in a hive to contain 35 lbs. of honey is about $8'' \times 13\frac{1}{4}'' \times 10\frac{1}{2}'' = 1113$ cubic inches. The bell-glass, if a spheroid, should be 12" base × 15" high, but its form would be a matter of taste and convenience.—W. M. GRAHAM.

Echoes from the Hives.

Bishop's Waltham, March 15th.—Since writing my last, we have had a radical change again in the weather to intense cold on Saturday 12th, nine degrees of frost, Sunday ten degrees, Monday at 11 p.m. twelve degrees, and as I write this (Tuesday) there are two inches of snow on the ground, and it is still snowing, the three previous days have however been lovely and warm during the middle of the days, and the bees have fairly revelled in the snowdrops and Arabis.—H. W. WEST.

Wadhurst, March 16th.—I have kept bees for years on the careless system, but your *Journal* has infused into me a zeal for the work, and I hope to succeed. I think the storifying system likely to answer; the best results I saw last year among all the condemned bees I took, was from a skep placed on the top of a new empty skep in the autumn of 1885; it was literally filled with pure white honey, and why may we not expect results quite as good from bar-frames? May I ask if Ligurians are good on *ordinary* clover? [Yes.—ED.] I shall amuse you, perhaps, by telling you I have made some iron hives; they seem to do well, I allow 2½ inches for cork-dust all round, they are not likely to blow over. I thank you for your kind replies to our many questions.—VULCAN.

'*Honey Cott,*' *Weston, Leamington, March 21st.*—Almost the whole of the month, thus far, it has been very severe, with a deal of snow threatening, though very little has really laid. There have only been a few solitary half hours or so that bees could venture out, to get a little pollen or water; they have scarcely had a chance at the crocuses, though they have been in flower a long time. Have just been up among the bees now, at noon, on the first day of spring, so-called, but scarcely a bee to be seen or heard; not very promising or cheering: but, as in the case of Picciola, the prison flower, we must hope and tell our neighbours also to hope.—JOHN WALTON.

Revlin House, Donegal, March 14th.—My bees have wintered so far very well, notwithstanding the rather severe winter, heavy snow, and slight frosts. Bees carrying in pollen on 19th ult., and every fine day since. I began to stimulate on the 6th inst., did not do so last year till the 23rd March. I have not had a look at them yet, as there have been some cold days, especially the last few days, sharp frosts and some snow, and very cold east wind. I have an Observatory hive with two frames, which I used for raising queens, and having left a young queen in it, I thought I would see if it would winter outside, and I find it has survived so far, not having enough honey, I put some candy on top of frames, which was their principal food. Gooseberry bushes are out in blossom here, but am afraid the frost has injured them.—GEORGE TURNER.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

H. W.—*Bees Fighting after Uniting.*—The camphor smell of one stock may have led to the disaster, and there may have been some fault in your method, which you did not notice.

H. W.—The pattern of enamel cloth will be found to answer your purpose. The shiny side is to put next the frames.

H. A. P.—There are no symptoms of foul brood in comb forwarded; it is a case of chilled brood.

M. D.—The piece of comb received is old, and many of the cells are full of last year's pollen, but the comb is healthy and may be used without prejudice to the bees.

NEW BEGINNER.—*Transferring.*—Yes, you may transfer to the larger hive, but it is best to wait until the middle of next month, and, even then, to transfer indoors to prevent robbing. For 'Transferring' see Mr. Cowan's *Guide Book*, or *Modern Bee-keeping.*

A. M. M.—1. *Crooked Combs.*—Since you say the combs are too irregular to be transferred, it is best to allow the bees to swarm naturally, and three weeks afterwards to remove the bees in the old hive (cutting away the combs) and to place them on foundation. 2. If your stocks have sufficient food they will do well enough presently. It is too cold for them to fly much, and there is but little forage to entice them forth. 3. *Hives Invertible.*—Either of the invertible hives you name are improvements upon the American, and are better adapted to this climate. Are you aware that the frames are close-ended and difficult to manipulate?

C. A. J.—1. *Artificial Swarming.*—There is no necessity for giving a comb with brood in the case you mention, as there are already five in the hive, and the chances are that some of the brood will not have hatched out. Besides, the hive will already be in the position of an established stock, having a large population of old bees, as well as large numbers of young ones which could not fly. It is very different with a nucleus where there are not many bees, and most of these old, except the few that had hatched out from the comb of brood inserted when first the nucleus was formed. 2. *Nucleus Swarming.*—There is no need to cage the queen in the stock removed, because the flying bees of the nucleus are very few in number, and will be returning, probably laden, to a hive full of bees, capable of protecting their queen from the few strangers should they be unfriendly. On the other hand, although the bees of the stock will be also returning laden to the nucleus, they will be so numerous as to quite outnumber the small population of the latter. Therefore, in order to avoid the risk of losing the young queen, we prefer to cage her. 3. *Carbolic Acid.*—We quite approve of carbolic acid, if used with care. Four tablespoonfuls to one quart of water are the usual proportions. The Rev. G. Raynor, who has used it for upwards of twenty years, recommends the following solution: 1½ oz. Calvert's No. 5 carbolic acid, 1½ oz. glycerine, and 1 quart of warm water. Great care must be taken in using, as it is very poisonous. 4. *Salicylic-Acid Solution.*—During all the years we have used it we have never had such a growth as you mention. It is possible that your acid may be impure, as it is frequently very much adulterated. The pure acid is largely used as an anti-ferment. We should not use the solution, but prepare another. 5. *Borax.*—The sample of powdered borax which you send is correct. Borax, which is biborate of soda, can be called 'soda borax.'

INQUIRER.—*Bees in a Loft.*—Without doubt bees may be kept, and prosper, in a loft, care being taken that the hives are not too crowded, and that the bees have free means of ingress and egress. The plan suggested will be found to work very well.

Show Announcements.

June 23, 24.—Suffolk Agricultural Show at Bury St. Edmunds. J. Huckle, Secretary.

July 11–15.—Royal Agricultural Show at Newcastle-on-Tyne. Entries close May 12. J. Huckle, Kings Langley.

July 20-22.—Lincolnshire Agricultural Society at Spalding. Entries close July 4. R. R. Godfrey, *Secretary.*

August 3–5.—Yorkshire Agricultural Society at York, Secretary, H. L. Rickards, Poole, near Leeds.

Business Directory.

HIVES AND OTHER APPLIANCES.

ABBOTT BROS., Southall, London.
APPLETON, H. M., 256A Hotwell Road, Bristol.
BAKER, W. B., Muskham, Newark.
BALDWIN, S. J., Bromley, Kent.
BLOW, T. B., Welwyn, Herts.
BURTT, E. J., Stroud Road, Gloucester.
EDEY & SON, St. Neots.
HOWARD, J. H., Holme, Peterborough.
HUTCHINGS, A. F., St. Mary Cray, Kent.
MEADHAM, M., Huntington, Hereford.
MEADOWS, W. P., Syston, Leicester.
NEIGHBOUR & SONS, 149 Regent St. & 127 High Holborn.
STOTHARD, G., Welwyn, Herts.
THE BRITISH BEE-KEEPERS' STORES, 23 Cornhill, E.C.
WEBSTER, W. B., Wokingham.
WREN & SON, 139 High Street, Lowestoft.

HONEY MERCHANTS.

ABBOTT BROS., Southall, London.
BAKER, W. B., Muskham, Newark.
BALDWIN, S. J., Bromley, Kent.
BRITISH BEE-KEEPERS' STORES, 23 Cornhill, E.C.
BRITISH HONEY CO., Limited, 17 King William St., Strand.
HOWARD, J. H., Holme, Peterborough.
NEIGHBOUR & SONS, 149 Regent St. & 127 High Holborn.

FOREIGN BEES AND QUEENS.

ABBOTT BROS., Southall, London.
BAKER, W. B., Muskham, Newark.
BALDWIN, S. J., Bromley, Kent.
BLOW, T. B., Welwyn, Herts.
BENTON, F., Munich, Germany.
HOWARD, J. H., Holme, Peterborough.
NEIGHBOUR & SONS, 149 Regent St. & 127 High Holborn.
SIMMINS, S., Rottingdean, near Brighton.

METAL ENDS.

ABBOTT BROS., Southall, London.
BAKER, W. B., Muskham, Newark.
BALDWIN, S. J., Bromley, Kent.
BLOW, T. B., Welwyn, Herts.
LYON, F., 94 Harleyford Road, London, S.E.
MEADOWS, W. P., Syston, Leicester.
NEIGHBOUR & SONS, 149 Regent St. & 127 High Holborn.

COMB FOUNDATION.

ABBOTT BROS., Southall, London.
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BLOW, T. B., Welwyn, Herts.
HOWARD, J. H., Holme, Peterborough.
NEIGHBOUR & SONS, 149 Regent St. & 127 High Holborn.
STOTHARD, G., Welwyn, Herts.

BEE-KEEPERS' APPLIANCES.

THE CENTRAL DEPOT,

HONEY.

23 CORNHILL, E.C.,

Opposite the Royal Exchange,

And within Five Minutes' walk of Cannon Street Station, Liverpool Street, Broad Street, and Underground Railway Stations, and close to the Bank, to which Omnibuses run from all parts of London.

HIVES.

'JUBILEE,' 5/-; Super, 1/6. Superior to many Guinea Hives.

'IMPERIAL,' 12/-. For Doubling.

Both the above take B.B.K.A. Standard Frames.

'JONES-HEDDON,' 14/6, made up complete.

" " 17/6, Painted, & with Sections

SECTIONS.

BEST CANADIAN BASSWOOD, V Groove, One-piece, Planed and Slotted all round.

$4\frac{1}{4} \times 4\frac{1}{4} \times 2$. 21/- per 1000.

$4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{2}$ }
$4\frac{1}{4} \times 3\frac{1}{2} \times 1\frac{1}{2}$ } 10/- per 500, or 2/6 per 100.

FIRST SHIPMENT EXPECTED DAILY. OTHERS TO FOLLOW.

ORDERS EXECUTED IN ROTATION.

BOTTLES, Clear White Glass.

	Per Gross.
TIE-OVER, reputed 1 lb.	
In Original 5 Gross packages	11/9
In 1 Gross packages	13/9
SCREW-CAP, in Original 5 Gross packages	19/3
" " in 1 Gross packages ...	22/0
CORK WADS for Metal Caps	1/8

Free on rail London. Packages free.

SUGAR for Feeding.

	Per Cwt.
PORTO RICO (packages about 2 cwt.)...	16/6
DUTCH CRUSHED	18/0

Delivered free to Railway Company, London.

ENGLISH REFINED or 'PEARL,'
In 7 lb. bags... ... ... per bag 1/6

Subject to Market fluctuations.

Being STAPLE GOODS no Sample will be sent.

CANDY, Phenolated, and with Pea Flour, Tin about $2\frac{1}{2}$ lb. 1/0

BOOKS.

	Pub. at.	Cash price.	Post free.
Heddon's Success in Bee-Culture	—	2/0	2/2
Cowan's Bee-keepers' Guide ...	1/6	1/2	1/4
Chesbire's Bees and Bee-keeping. Vol. I.	7/6	5/8	6/0
Modern Bee-keeping	0/6	0/5	0/6
British Bee Journal; weekly ...	0/2	0/2	10/10
Bee-keepers' Record; monthly	0/2	0/2	2/6

&c. &c. &c.

FOUNDATION.

BROOD, 1 lb. @ $1/11\frac{1}{2}$. 3 to 5 lbs. @ $1/9\frac{1}{2}$ per lb.

SUPER, 1 lb. @ 2/7. 3 to 5 lbs. @ 2/6 "

SUNDRIES.—FUMIGATORS, by Webster. METAL ENDS, by Abbott, Broughton, Carr, and Lyon. SKEPS, STRAW SUPERS, VEILS, FRAMES, wired and in the flat, Cheap Glazed TRAVELLING CRATES, to hold 1 dozen Sections,

&c. &c. &c.

NO CATALOGUE ISSUED YET.

Export Orders with Remittance or Bank Credit receive special attention.
Commandes pour l'exportation accompagnées de remises ou credito de banque reçoivent une attention spéciale.
Export ordern mit Geldsendung oder Bankcredit sind mit besonderer Aufmerksamkeit besorgt.
Commandi per esportazione accompanati con rimesse o Crédito sull' Banca recevano attenzione speciale.
Speciel opmærksomhed skjænkes Expert ordre som ledsages af Rimesse eller Bankrembours.

The British Bee-keepers' Stores, 23 Cornhill, London, E.C.

(Opposite the Royal Exchange),

MANIPULATE WITHOUT SMOKE!

WEBSTER'S FUMIGATOR

Entirely supersedes the Smoker, both in Simplicity and Effectiveness. No 'going out.' No tainting or soiling of combs. Always ready for use without any preparation. Can be carried in the pocket.

With Bellows, 4s. 6d.; postage, 4½d.

Without Bellows, 3s.; postage, 3d.

Can be adjusted to any ordinary smoker bellows.

6 oz. Bottles of Agent—carbolic acid, oil of tar, and water, properly mixed—6d. each.

WEBSTER'S SWIVEL FRAME-LIFTER

WILL BE READY SHORTLY.

With this appliance, frames can be removed from hive, replaced and examined on both sides without inverting, with one hand, leaving the other free for manipulating, at the same time preventing soiling the hands with propolis.

W. B. WEBSTER,

SOLE MANUFACTURER AND INVENTOR,

WOKINGHAM, BERKS.

AWARDS FOR FUMIGATORS LAST SEASON.

1st Prize Silver Medal, Royal Counties' Agricultural Show.

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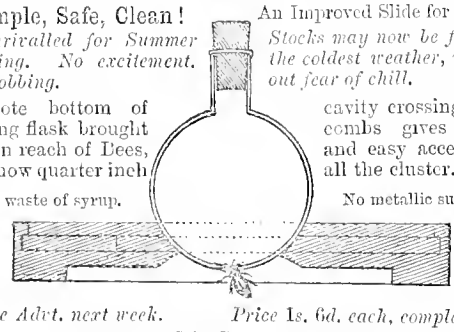

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THE BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, St. Martin's Lane, W.C.'

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Editorial, Notices, &c.

OUTLINES OF BEE-KEEPING FOR BEGINNERS.

(*Continued from page* 115.)

IV.—How to Manage and Control Bees.

1. The honey-bee has become a domesticated animal; it accepts the dwelling which we select for it, and takes the food we provide it with; becomes used to the care and attention we bestow, but does not learn to know its master, and if he disturbs its dwelling, or interferes with its flight, will sting him just as readily as it will a stranger. It goes its own way, interferes with no one, and will not allow any one to interfere with it. Fright and fear are the means by which bees may be controlled. (The Eastern races are an exception, but as these are not suitable for beginners, we shall not refer to them.)

2. Many bees are very quiet, and with gentle handling much can be done with them; more especially is this the case with pure Carniolan and Italian bees. Others are not so manageable, and we have to resort to other means. Smoke or carbolic acid frightens bees, and they immediately rush to the cells to fill themselves with sweets.

3. Before examining a hive blow a little smoke in among the bees. Whatever has to be done should be performed as rapidly as possible, and if any operation takes a long time it will be necessary to give more smoke. Quiet manipulation will generally prevent bees becoming angry, but should they show their tempers they can be subdued by giving them, from time to time, more smoke.

4. For this purpose a smoker should be used, Brown paper, rags, old fustian or sacking rolled up. lighted, and put into the barrel with the smouldering end downwards, will answer the purpose for supplying smoke, and will keep alight for a considerable time. Care must be taken not to give too much, so as to stupify the bees.

5. If carbolic acid be used the treatment must be different. A solution is made by mixing four tablespoonfuls of No. 5 Calvert's carbolic acid in one quart of warm water, shaking it up well. With a goose-quill apply some of the solution to the alighting-board and round the entrance, as well as a little within. If a skep is to be examined, turn it up carefully and spread over it for a few seconds a piece of thin calico moistened slightly with the solution, when, on its removal, it will be found that the bees have run down amongst the combs. For moveable comb-hives raise the quilt slightly at one end of the hive, and apply the feather dipped in the solution along the tops of the frames, or the calico may be spread over them the same as described for a skep.

6. As carbolic acid is a poison, great care is required in its use, and should any of the solution come into contact with the hands they should be immediately rinsed in clean water. Should there be any cuts or cracks on the skin still greater care must be taken.

7. During great heat, causing much perspiration, and in very windy weather, when the bees are blown about and the smoke driven away, they should be left alone.

8. Bees do not like bad smells; dust or dirt and dark colours irritate them. Human breath is also offensive to them. Persons dressed in dark clothes and having dark hair are more liable to attack than those having light hair and wearing light-coloured garments.

9. Beginners who have not yet got used to stings should provide themselves with a veil to protect the face. This can be made of coarse black net, one yard by eighteen inches. Fasten the ends together, run a hem round the top, insert an elastic, and draw it up until it fits round the crown of a hat. The rim of the hat keeps the veil from the face, and the lower end can be tucked in under the coat about the neck.

V.—The Different Bees found in a Colony.

1. The bee is a sociable insect, and cannot live long by itself. Many bees live together and form a society called a colony. In the colony is found one large bee which may be recognised by her form, size, and colour, being longer and of more slender structure, with comparatively shorter wings than the others. This is the queen; she is the only fully developed female who lays all the eggs, and is the mother of all the bees in the colony. She passes through various changes from the time the egg is laid to leaving the cell as a full-grown insect in from fifteen to seventeen days, and can live five years, although she usually serves the bee-keeper only for two to three years.

2. The other bees are the workers; upon them devolves all the work of collecting and defending their stores, building comb, and feeding and protecting the brood. They are females, but are undeveloped as far as regards their reproductive organs. They mature in about twenty-one days from the day the egg is laid, and fly out for collecting in from eight to fourteen days. Those hatched in the autumn generally live through the winter, but during the summer, when they have much work to do, they usually live from six to eight weeks.

3. During the swarming season there appear male bees. These are called drones, and are recognised by the noise they make when flying; they are more bulky than the queens and larger than the workers; have no stings, and do no work. At the end of the swarming season, when their services for impregnating the queen are no longer needed, they are driven forth by the workers. In queenless hives they remain sometimes until the following spring.

4. Sometimes what are known as fertile workers are found in queenless colonies no longer having the requisite means of producing a queen, but from the eggs they lay only drones proceed.

USEFUL HINTS.

Weather.—The present March will long be remembered as one of the most severe on record. Frosts, snowstorms—snow lying to a depth of eighteen inches—gales, almost hurricanes, have prevailed; and 25 degrees of frost have been registered sufficient, we fear, to kill in many cases the embryo buds on the fruit trees, if not the embryo brood in our hives. But we have only neighbour's fare, since we are told that the experience is the same 'from Northern Denmark to Southern Spain.' What all this portends it is difficult to foretell, but we trust a fine summer and a good season for the bees will follow. Every gleam of sunshine, and every opening flower, is utilised by the bees, but we hear complaints of dysentery and the loss of many colonies. Feed, feed, is still the order of the day, since there is very little either in field or garden upon which the poor insects can regale themselves.

Heddon and Stewarton Hives.—Some doubt seems to have arisen respecting the weather-proof qualities of Mr. Neighbour's Heddon Hive. For many years we kept bees in Stewarton hives, having no outer cases, in a sheltered position, without any protection whatever, and we never found the wet to penetrate. The bees propolise the boxes so firmly together, stopping even the smallest chink, that it is next to impossible for the rain to enter; and with a well-made, well-painted Heddon hive we should have no fear of weather.

Foundation and the Woiblet Spur.—We are indebted to Mr. Cowan for his lucid description of M. Woiblet spur for embedding wire in foundation. The one he kindly presented to us is beautifully finished, and works well on the plan suggested. Over a spirit-lamp, we keep boiling water, in which to dip the instrument, in preference to heating the wheel in flame. Unfortunately all plans of wiring frames, and embedding the wires in foundation, occupy much time, and we have little doubt that the rapidity and ease with which wired or unwired foundation can be inserted in Mr. Lee's new frames and sections will obtain for them almost universal acceptation. We much wish that dealers could supply foundation in sheets 13⅜ in. × 8¾ in. instead of 13¾ in. × 8 in., which is not wide enough to pass through the bottom bar of the standard frame. Wired foundation, being an American production, we fear some time must elapse before sheets of the former size can be procured, but Mr. Neighbour informs us that he will procure them with the least possible delay, and no doubt our other firms will do the same. Mr. Cowan has alluded, in his article on the Woiblet Spur, to the combs built upon wired foundation in Mr. Abbott's observatory hive exhibited at the Windsor Show, which was held on the 13th July, 1880, and we well remember the circumstance to which he refers, viz., that in the combs filled with brood there were lines of empty cells corresponding to the wires in the foundation. Since that time, as Mr. Cowan justly observes, the wired foundation has been greatly improved, and we have used it for the last four or five years in our own apiary with complete success, never finding it to bulge, or break down, under the weight of the bees in the hottest weather, nor have the queens ever refused to breed in the cells through which the wires pass. Formerly the wires were too numerous, being at one inch distance only, and they were untinned, and so liable to rust. Now they are placed at double that distance, are well tinned, and much reduced in substance. The foundation is flat-bottomed and light, but the bees draw it out into combs as quickly as they do other kinds, and moreover it has this advantage over unwired, that the combs may be safely passed through the extractor as soon as built, without fear of breakage. The only drawback with us has been that in some cases the bees have refused to carry down the combs below the foundation-sheets, that is, within an inch of the bottom bar of the frame, thus causing too much space at the bottom of the hive and waste of room. But with broader sheets, to pass through the bottom, and top-bars also, according to Mr. Lee's plan, we anticipate obtaining perfectly straight combs, and frames as well filled as by inversion. Mr. Lee has conferred a great boon upon our fraternity in general, and we trust that he may reap the benefit to which this invention, as well as his antecedents, fully entitle him. To those, to whom time is not an object, and who prefer the wired frame, we recommend the Woiblet spur.

Syrup and Candy.—We are often asked what are the relative values as regards weight and quantity of honey as stored by the bees, and sugar syrup prepared from the common recipe of 10 lbs. of sugar to six pints of water. Roughly speaking, this quantity may be taken as 16 lbs. of syrup, and it is calculated that in consuming, ripening, and storing, the bees will reduce it to 10 lbs. of food, which are equal to about the same quantity of honey. Other circumstances must, of course, be considered, such as the time of year, the strength of the colony, whether it is breeding, whether honey is obtained from the fields, &c., but, as a general rule, we have proved by experience that it is tolerably correct. We still continue to feed on soft candy, introducing a small quantity of pea-meal, and a little salicylic-acid solution. Finely powdered white sugar and liquid honey form the staple of the candy, which the bees take with evident approval. This food excites less than syrup, and there is not so great a desire, or necessity, to leave the hive as when feeding on the latter.

Robbing.—Bees are so much inclined to robbing now, that where feeding is in process the utmost care is necessary. Colonies being fed should be watched, and if much excitement is noticed contract entrances and use freely carbolic solution.

Cyprians and Syrians.—On the vexed question of the qualities of the Cyprian bee we are often asked to state our experience, which extends over a period of the last five years only. In April, 1882, we introduced our first imported Cyprian and Syrian queens, and, classing both races in the same category, related our experience, after nearly a year's trial, in the monthly issue of the *B. B. J.* of February 1st, 1883 (Vol. x. p. 212). Recent

experience has led us to modify the views there expressed, which were summed up thus—'(1.) Extremely prolific. (2.) Excellent honey-gatherers. (3.) Extremely vindictive, and difficult to handle. (4.) More liable to disease than other races, especially to dysentery.' Although we have not bred the two races pure, to any large extent, we have always kept a few colonies of each, and have used imported queens occasionally, beside our homebred purely fecundated ones.

Our opinion under the heads 1 and 2 remains unaltered. As regards fecundity Syrians, perhaps, yield the palm to Cyprians, but both are extremely prolific, and their crosses with the black bee can hardly be equalled. Their honey-gathering qualities are of the first order, and they constantly work later in the day than the black bees, and in weather when the blacks remain at home. For extracting purposes, in our opinion, they, especially the Cyprians, have no equal, but in working sections they use so little wax—barely half as much as blacks—and the capping is so light and thin, rendering the comb in appearance dark in colour, and the honey liable to ooze, that their sections cannot compete with those of the blacks, although the honey is of equal, and often of superior quality.

Under heading 3 our opinion is modified. When once aroused, by careless handling, smoking, or otherwise, no words can express their *persistent* anger. But there is no *necessity* for provoking them. Truly, they are not the bees we would recommend to a novice who is always manipulating and smoking his bees. Smoke, whether much or little, they resent most furiously. Smoke we never use *now*, having entirely discarded it, and given away our smokers. A little weak solution of carbolic acid is all we use, and, more often than not, we dispense with that. Gentle, quiet handling—even under the provocation of a sting or two—in four cases out of five, is all that is necessary. If by any untoward chance their anger is aroused, a light sheet, sprayed with carbolic solution, and thrown over the open hive, will in a few minutes allay their anger. For our own part we would rather manipulate Cyprians and Syrians than blacks and hybrids, although, by using the same means, there is no difficulty with either. A little discrimination in this, as in all other matters, is advantageous. For instance, as Mr. James Abbott truly observes, small colonies are more easily handled than large ones, and he might have said that large, prolific colonies defend their brood and stores far more vigorously than weak ones. But this is a truism which applies to all races, even to the quiet, tame, spiritless Carniolans. Our first experience in manipulating Cyprians was with smoke, hence we were led to describe them as 'extremely vindictive.'

Fourthly, we spoke of them as liable to disease, especially to dysentery.

Since those words were penned we have not met with a single case of dysentery, or any other disease, in Cyprian or Syrian colonies. If our readers will turn to the reference we have given above, they will find the case described which led us to the erroneous conclusion that these Eastern races were especially liable to dysentery. The summer of '82 was cold and wet, and consequently very little honey was stored in our apiary. The first Cyprian queen was introduced in April, so that before the colony was completely cyprianised the middle of June had arrived. After that date the weather was so unsettled that, without feeding, the bees could scarcely collect sufficient food for daily use, and the honey was thin and poor in quality. No wonder, therefore, that bees brought from the fine and warm climate of Cyprus should succumb to dysentery under such disadvantageous circumstances. All this teaches us that it is unwise to give a decided opinion upon any matter before a full and sufficient trial has been made. Had we possessed our present experience that loss would never have occurred, since it might easily have been prevented by checking late breeding, and exchanging a few combs of unsealed sour honey for ripened sealed combs. We hope the day is far distant when these excellent and beautiful bees shall be discarded from English apiaries.

Last autumn we obtained two imported Cyprian queens from Mr. Benton, and these are now reigning over strong colonies, and doing as well as we could wish in all respects. We prefer, however, home-reared queens—with an occasional importation—if only we can get them purely fecundated, but, surrounded as we are by bees of all races, mongrels included, it is only by practising the Köhler method that we can attain our object. That process is a slow one, and often requires much time, which can be ill spared during the busy summer months.

It is with much pleasure, therefore, that we are assured that Mr. Simmins possesses all the requirements for pure fecundation, and we shall hope in future to draw chiefly upon him in preference to rearing our own queens, since, most certainly, we do not intend to give up either the Cyprian or Syrian races.

Both are most valuable if used only for purposes of crossing. There is no finer bee in appearance, and for work and hardiness of constitution, than the Syrio-black cross.

APIFUGES.—Noting Mr. Grimshaw's reply to our remarks on his newly-coined term, 'Apifuge,' we have to say that we had not read his letter (*B. B. J.*, page 38) before those remarks were written, but we do not see that his derivation from *fugio*, instead of *fugo*, as we supposed, improves his position. From childhood we have been fully aware of the difference in meaning between *fugio* and *fugo*. Using the former in the sense of 'to escape,' we cannot see that the word will bear the meaning which he intends. For instance, we have the word 'centrifugal' (from *centrum* and *fugio*) 'flying from a centre,'—(Skeat), and the expressions 'avoiding,' or 'escaping from,' the centre, make no real difference. The verb '*fugio*' throws its action on *centrum*, and in apifuge *fugio* must transfer its action to its object, *apis*, and the meaning will be 'flying from the bees,' whereas if *fugo* had been used we should have had the meaning of 'putting the bees to flight,' in unison with 'vermifuge' and 'febrifuge.' A word must bear the meaning which its construction warrants, independently of the intention or wish of Mr. Grimshaw. Both 'vermifuge' and 'febrifuge' are formed from *fugo* (not from *fugio*), and, we presume, the authors of these words thought *fugo* the most suitable or they would not have selected it. Professor Skeat, in his *Etymological Dictionary*, tells us that 'febrifuge' is derived from '*febri-s*, fever; and *fugare*, to put to flight,' and he gives the meaning of 'febrifuge' 'fever-dispelling.' Mr. Grimshaw says 'febrifuge does not put the fever to flight'—*i.e.*, does not dispel it—but merely 'abates its violence.' Nuttall, in his last edition, and all other lexicographers with whose works we have any acquaintance, are in agreement with the Professor, who is the great authority at both Universities. The same also may be said of 'vermifuge.' When Mr. Grimshaw says 'vermifuge does not *literally* put the worms to flight, but is a medicine for *expelling* worms,' surely he is quibbling. No one supposes that worms possess wings; neither when an army is put to flight does any one credit its individual soldiers, or the army itself, *literally* with possessing wings. To expel, or drive away, means, therefore, to put to flight, so long as the beings acted upon are *living*. We have no doubt whatever that Mr. Grimshaw 'used the verb in the sense of to avoid,' but it seems to us a mistake to do so, since, so far as we are aware, there is no precedent for such usage in conveying the sense he wishes.

But we come now to a more important matter still. In all seriousness surely Mr. Grimshaw does not mean to promulgate, or perpetrate, such a macaronic solecism—

such an etymological monster — as 'Galactofuge,' a thorough mongrel, half Greek, half Latin (Γάλα, gen. γάλακτος, milk, and *fugare*, to put to flight). And he says it *only* 'decreases the secretion of milk!' Well, in our simplicity, we should have thought driving away a *part* of the milk was much the same as preventing its secretion. Surely he must drop the initial syllable 'Ga' to agree with the terminal 'fuge' from 'fugare.' 'Kentrofuge' would be less barbarous and less hideous.

As regards the suggested word, 'Kentrapone,' or 'Kentrepone,' our 'Authority' condemns it as 'hideous with a vengeance.' Perhaps his ear has not become attuned to the Greek language. To our feelings it is, to say the least, as euphonious as 'Apifuge.' Its derivation from τό κέντρον, a sting, and τρέπω, to turn aside, is very simple, and the euphony, to our ears, is pleasing. A friend, however, suggests 'Kentrotrope' as a better word, and more in accordance with usage and analogy. Therefore, if anyone wishes to adopt it, let him do so, or shorten it to 'Kentrope,' and he will have a much better word than 'Apifuge,' notwithstand-Mr. Grimshaw's dictum. But if all are declined we shall not grieve overmuch.

There is no plant of the scent of which bees are more fond than of that of the herb balm (*melissa*).* The plan of rubbing the hives with this plant before hiving a swarm, prevailed almost universally in olden time, and even now we often use it. A solution of a little honey and water, scented with the essential oil, essence, or extract of balm, will form a better lotion for the protection of the hands and arms than all the modern 'fuges' with their abominable stench; and the cost is a mere trifle.

We commend to our youthful readers the fable of 'Cupid and the Bee,' with its excellent moral.

'Cupid, one day, not perceiving a bee which rested upon a rose, was stung upon his finger, and, uttering cries of pain, he flew to the beautiful Cythera† exclaiming, "I am destroyed, O mother, I am destroyed, and shall surely die; a little winged serpent, which the country people call a bee, has stung me." To him Cythera replied, "If the sting of a bee, O Cupid, causes so much pain, how much, think you, do they suffer upon whom you hurl *your* darts?"' (Anacreon, Ode XL.)

Foreign.

ITALY.

Chevalier L. Sartori, of Milan, was, a few days ago, favoured with the visit of two Japanese delegates, viz., Messrs. G. R. Hida and H. Danké, Counsellers of the Japanese Ministry of Agriculture and Commerce. The distinguished visitors had not been long in Mr. Sartori's well-known apiary before it became evident that they were not novices in matters connected with bee-keeping, as their numerous and pertinent inquiries plainly testified. Nothing, it appears, escaped their observation, and much interest was exhibited when examining the new large plates recently published by Mr. Sartori, with explanations in four languages. In fact, before bringing their visit to a close, they left an order for 400 sets of these illustrations for the Government of Japan, upon which notes will be inserted in the Japanese language. Of course, the natural beauty of the Italian bee was, of itself, an object of no small interest, and a few stocks were ordered for shipment to their country. They were, however, not a little surprised when Mr. Sartori placed before them two large plates illustrating Japanese bee-keeping. Before leaving, they expressed themselves highly pleased with what they saw in Mr. Sartori's noted establishment.—*Apicoltore.*

AUSTRIA.

Next month an apiarian exhibition will be held in Vienna, and such a large number of exhibitors intend to compete, native and foreign, that the extensive premises of the Botanical Gardens will hardly afford room enough. The hives wherein 'the little busy bee has improved each shining hour,' from the earliest period of bee history down to the present day, will form an attractive section of the exhibition.—*Daily Telegraph.*

SWITZERLAND.

New Experiments calculated to ascertain the Proportion of Honey used by Bees in the Production of Wax.

In making the experiments which I am going to describe, I have not made it a point to ascertain whether or not bees build their combs more economically with one kind of sugar than with another, my object having been simply to arrive at the quantity of honey used by bees working in an apiary at their free will, and at a season when they take to comb-building with more readiness than in any other.

The experiments hitherto made in this direction differed so much among themselves that it was impossible to arrive at a reliable conclusion. It is this fact which induced me to recommence these experiments, taking for basis the various plans previously adopted. But at the very outset two questions arise which in practice have often been confounded, but which must be distinctly separated, viz.:—

1st. Even when honey is plentiful, it is not advantageous to induce bees to produce wax, although it may be done at a small cost, because, in the first place, if only a few empty frames are given to a strong colony among a good supply of ready-made comb, within which to store the incoming harvest, and yet to find sufficient scope to give vent to their comb-building propensity, they would be almost sure to build drone-comb. On the other hand, if plenty of comb-building is given them by reducing them, as it were, to a combless swarm, they would no doubt build numerous worker-combs, but they would not have sufficient cells wherein to store the incoming honey, the production of wax not being in proportion to the collection of honey. Therefore, at the time when honey is plentiful, it is not advisable to set bees to comb-building. 2nd. When, on the contrary, the honey yield is great, is it advantageous to set our bees to produce wax? This is the point I have tried to solve.

The basis of what was considered to be the best experiments made consisted, briefly put, of selecting two stocks, say A and B, of the same strength, one of which — A, for instance — was supplied with empty frames, and the other, B, ready-built combs. A little later on, the honey gathered by B is weighed; the same with that found in A. This done, the quantity of wax produced is ascertained; the difference between the weight of the honey compared with that of the wax produced represents the proportion between the honey and the wax. This method is, however, incorrect in several respects.

1st. Even supposing that by some chance one queen were as prolific as the other, they would not lay the same number of eggs within a certain number of days, because one of the hives afforded, from the very first day, all the desired accommodation for egg-laying, which would not be the case with the stock whose combs are built at a slow pace. Therefore, at the end of the experiment there will be more brood in one than in the other; hence a difference also in the consumption of honey, a difference which is left out of reckoning, and—

2nd. It was generally supposed that by choosing from

* Greek for bee.

† Cythera (Venus), an island lying S.E. of the 'Peloponnesus (modern *Cerigo*) in which Venus was especially worshipped; as she was also in Cyprus, whence we obtain our beautiful yellow Cyprian bees.

an apiary two stocks, apparently of the same strength internally, and of similar activity externally, one could compare the work done by either of them without risk offering to any great extent; but very frequently this is not the case as I will presently show.

Having examined two stocks, which for the present purpose I will call No. 1 and No. 2, and having, moreover, ascertained that the strength of the latter was about twice that of the former, I reduced them both to the condition of a swarm. The bees, finding themselves now free to set about bringing in their harvest, under identical circumstances—for both hives had been deprived of their brood—at the closing of each favourable day I used to take the exact weight of the honey brought in. No. 1 had stored kilos 2,140, and No. 2 kilos 2,030, that is, nearly as much as No. 1, whereas it ought to have gathered only about half that quantity. This year M. Bertrand witnessed results similar to this, in the opposite direction. A stock of his had gathered kilos 37 of honey, whilst another, of about the same strength, had brought in, during the same interval, kilos 18. The question with me now is, not to find how to explain this, but rather to show that all experiments having for basis the simple comparison of actual work done by two colonies of the same strength cannot be relied upon.—G. DE LAYENS.

(To be continued.)

LECTURE ON BEE-KEEPING.—SOUTHGATE BRANCH OF THE M. B. K. A.—A lecture under the auspices of the Middlesex B. K. A. was delivered at the Village Hall, Southgate, by Mr. John P. Sambels, on Thursday, 24th March, on 'Bees and Bee-keeping.' Owing to the inclemency of the weather the attendance was not so large as could have been desired, but those present were well repaid for their trouble, if one can judge by the interest shown. The subject, it is needless to say, was treated in the lecturer's usual happy manner, and he kept his audience spellbound during one hour and a half. The appliances used in the illustrations were lent by Mr. P. P. Hasluck, the hon. Secretary of the Southgate Branch of the Association, and Mr. Sambels kindly exhibited an invertible section crate designed by himself, and some specimens of Canadian honey. At the conclusion of the lecture the Rev. James Baird, President of the Southgate Branch, proposed a vote of thanks to the lecturer, which was heartily accorded by those present. It is to be hoped that this lecture, and the coming show on the 8th and 9th July next, will give a great impulse to bee-keeping in the neighbourhood.

A HINT.—Bee-keepers would do well to oil the leather parts of their smokers to prevent cracking. Castor, train, sweet, or olive oils will do.—ONE IN THE LEATHER TRADE.

HOW TO EMBED WIRE IN COMB FOUNDATION WITHOUT A 'WOIBLET SPUR' OR ANY EMBEDDER.—Wire frames, and procure board to fit as in ordinary fixing. Lay foundation on the wet board, resting on a stool convenient to a clear charcoal fire. Heat the frame over the fire and press down while heated upon the foundation, and it will be embedded at once. Half-a-dozen may be fixed by this method, while one could be done by the 'Spur.'—EXPEDITUS.

KEEPING RAIN FROM THE BRITISH INVERTIBLE HIVE.—The Rev. H. W. Lett asks how the rain is to be kept out of the British Invertible Hive. As they are at present constructed this is impossible without affording the hives some outer covering. But why should there not be a double fillet fitted to all the joints. The simplest way is this:—Run a plough one inch deep along both top and bottom of every box, and then plane down the outer edge ⅜ inch; then make a double fillet to fit into the plough of upper box and hang over the edge of lower box. By this means I think damp and draught may be excluded.—C. W. SCOTT, *Bray, Ireland.*

EUCALYPTUS HONEY.—M. Guilmith, the French traveller, while on a journey in Australia, discovered some bee-hives in a gigantic eucalyptus-tree, of 120 metres in height. The honey was strongly scented with the perfume of the flowers of the tree. Professor Thomas Karrauan has examined it, and believes it to have beneficial medicinal properties.—*Hull News.*

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR *of the "British Bee Journal," c/o Messrs. Strangeways and Sons, Tower Street, Upper St. Martin's Lane, London, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *King's Langley, Herts (see 2nd page of Advertisements).*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

THE NEW RACES, AND THE BEST MEANS OF INTER-BREEDING AND SECURING FERTILISATION.

SYRIANS.

[878.] Notwithstanding statements to the contrary, I have not, with any race of bees, known individual colonies to vary in temperament. Just as I have found the disposition of any one queen's progeny in the first instance, so the same character has been continued throughout. The only difference at all discernible is that, generally speaking, bees are more easily handled when building up in spring, than at any other time.

Any sudden exhibition of ill-temper from a stock otherwise found to be of gentle disposition, can only be caused by some oversight on the part of the operator, some hasty movement, or crushing of bees, as it would be unreasonable to suppose that even those of the most amiable disposition would not use that defensive weapon ever at command in case of carelessness being at any time shown by the bee-keeper. More often than not, however, the first object attacked would not be the operator, but some person or thing not quite so near. It is a remarkable fact that in handling various colonies time after time without being stung myself, the same bees have attacked chickens near at hand; and I believe it is generally understood that while subject to the bee-master, no robber dare approach the open hive without being immediately attacked. The foregoing then shows how much depends upon the bearing and manipulation of the bee-keeper, even where gentle bees are concerned. They are quiet under the hand of man, but will submit to no other interference.

Now I do admit that, generally speaking, different colonies vary in temperament as compared with each other, though as yet I have not found it so with Cyprians. Syrians vary in this respect to an extent which seems almost incredible. The most vicious colony I ever met with is one I now have of this variety, and the temper of this individual stock never varies, nor does that of another not quite so bad. I do not condemn Syrians because I have among them the worst-tempered bees I ever had, for having others of this kind that can be handled absolutely like flies, it is quite evident that the bad temper need not be perpetuated.

The foregoing shows conclusively how entirely wrong are those who condemn any particular variety, because the one or two imported queens they had purchased happened to throw vicious workers. Those who rear these bees in their native land must, in their own interests, breed from amiable stock, and in course of time no more queens that produce vicious stocks will be sent out.

At first sight Syrians appear rather dark in colour as compared with Ligurians, though having the same number of yellow bands, but unlike the latter they are yellow on the underside of the abdomen.

Syrians are good workers, but not as generally so as Cyprians, and being less beautiful than the latter, I have

decided not to keep them extensively, but shall probably continue to experiment with about a dozen colonies, as they may possess some unexpected qualities which might be of advantage in crossing with other races.

It has been said of these bees, that, more than any other kind, they will breed heavily into late autumn, but from my own experience, I can state, as a fact, that this peculiarity has been entirely overcome in the same manner as I recently pointed out in connexion with Cyprians.

It should be hardly necessary to state that the treatment recommended in these papers refers solely to stocks in normal condition, or such as are populous and well established, headed by queens raised or imported not later than June. Nothing but absolute starvation will stop the laying of a young Syrian raised towards August; and queens of these more prolific races ought not to be obtained after midsummer, unless they be such as were reared early, or during the preceding year.

It has on several occasions been stated that when young, Cyprian and Syrian bees can be handled very easily; but is not this the case with all bees? In speaking of the disposition of any kind, is it not implied that one is speaking of an average working stock which therefore includes bees of all ages? How then can the comparison with older bees show that the latter are unmanageable because of their age? Again, why are vicious bees easily managed if in nuclei? I tell you, friends, that if bees are vicious as a populous colony, nothing will alter that disposition. As a matter of fact, I have on several occasions made up nuclei from ill-tempered Syrian colonies, which were occupying three chambers, and none of the nuclei were in the least better behaved than the parent colony. On the other hand, I have built up mild-tempered Syrians from nuclei into populous colonies, when they were equally as well disposed as at first.

PALESTINES.

These, often called 'Holy-Lands,' are sometimes confused with Syrians. Bee-keepers should endeavour to correct this mistake as the two are quite distinct. Palestines come from the Holy Land, while Syrians are found much farther north. The former are exceedingly beautiful, being even more yellow than the Cyprians, and having also a quantity of grey hair about the body; the drones also are very yellow, whereas Syrian drones can hardly be distinguished from blacks in many instances.

I have had no Palestines for the past six years, as my experience was not at all favourable with them. They develop fertile workers and supersede queens to an alarming extent; but there is another peculiarity about them which I have not found with the most savage Syrians, and that is a very unpleasant habit of biting one's fingers during manipulation. I believe Mr. Benton, also, does not recommend this variety, and though they are fairly good honey-gatherers, for my own part I shall not again keep them.—S. SIMMINS.

'APIFUGE.'

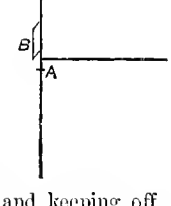
[879.] In common I doubt not with most practical bee-men, I have been amused at the storm which has raged around this word, both as regards its meaning and also its utility. Of the first I will say nothing, but as regards the second, I think we want something more than the sanguine expectation of its inventor. At present, the notion of a substance that will prevent stinging savours too much of the ignorant prejudice one so often meets with in the bee-tent, which found expression from the Cornishman, who thought he had been defrauded, when he exclaimed, 'He guv they bees chemicals.' For my own part, I confess to an utter inability to believe in *any* substance checking a bee that has made up its mind to part with its 'business end.' Having experienced many thousands of stings, and observed the conditions under which they were administered, I am convinced that nothing short of absolute prevention in the shape of external protection will deter a bee whose mind is made up. He flies straight at his goal as an arrow from the bow, and is *generally* in such a hurry, he fails to strike home true, but entering obliquely, a large part of the venom is wasted. Your bee that hesitates is 'lost' (as a patriot), and once settled on hand or face, is as safe as a fly, be you dressed with 'Apifuge' or any other 'chemical,' or with honest clean water. If this is not the experience of all who have studied the matter, I am much mistaken. We shall be glad to hear the last of 'Apifuge' as another of those treacherous traps for impoverishing humanity, and giving point to those angry growls from disappointed reformers who only desire in taking up bee-keeping to benefit their tenants.—E. H. BELLAIRS.

GLASS HIVES.

[880.] The Rev. J. Lawson Sisson has rightly questioned M. Figuier's assertion that Maraldi was the inventor of glass hives, and quotes Robert Boyle as having kept bees in these homes some twenty-five years earlier, namely, in 1688. But the truth is glass hives were invented much earlier than this, *how* much it would be difficult to say. Pepys tells us in his *Diary* 5th May, 1665, that 'after dinner to Mr. Evelyn's, he being abroad we walked in his garden, and a lovely noble ground he hath indeed. And among other rarities a hive of bees, so as being hived in *glass*, you may see the bees making their honey and combs mighty pleasantly.' As this was written very nearly 100 years before the description of Maraldi's glass hive was heard of, we have another instance of the Gallic tendency to appropriate to themselves whatever inventions have been made for advancing human knowledge. Without claiming the invention as exactly English, it is desirable to protest, seeing how frequently foreigners, and especially our nearest neighbours, ignore the researches of our own countrymen in the department of science.—E. H. BELLAIRS.

HIVE COVERS, &c.

[881.] In answer to those correspondents who wish to know the best plan for keeping wet out of the joinings of hives when storified, and also for keeping the wind from blowing them apart, I find a good plan is to put a beading round the lower part of the upper hive of $\frac{3}{4}$ in. wood, of course flush with the hive bottom, bringing it well to a point (see sketch at B). Being $\frac{3}{4}$ in. wood it keeps the drip well off the hive. By putting a small button at A in the middle of the top of each side, which will turn up under the beading, the hives are kept well together.

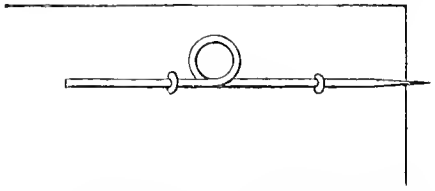


Instead of the beading, and a plan I much prefer, is to make some of Simmins's covers of an extra size. These come well down over the sides, forming a good shade in hot weather and keeping off even a driving rain. I made three for myself last year, and there has not been a sign of dampness inside them, while many other roofs, with plenty of slope and apparently perfectly sound wood, are unaccountably damp inside. I consider them the best covers out, and they also fit either skeps or any sized wooden hives.

I found out a little plan the other day which answers admirably for fixing dummies in any part of the hive. I got some large pins and twisted them in the middle into a loop, and by putting a small staple on each side of the centre of brass wire—which clench on the other side

of the dummy—a small bolt is made which the least pressure against the sides causes the dummy to be held in its place, and it also has the advantage that it lifts with the hive when the latter is propped up during a honey glut in hot weather.

You can make your hives double-walled on two sides by this plan, and make use of the same sides in contracting the hive for winter.



Cut the pins' heads off. The least touch of the points keeps the dummy in position. Drive the staples close down on the bolt.—ARTHUR J. H. WOOD, *Bellwood, Ripon, March* 15.

NOTES ON BEE-HIVES.

THE HEDDON NEW HIVE.

[882.] On page 620 of *Gleanings in Bee-Culture* for 1884, the Editor, Mr. A. I. Root, says:—

'I am very glad indeed to note the disposition among bee-keepers of forbearing to copy the works of each other, patent or no patent. The supply-dealer who would unhesitatingly copy something well known to be the property of another, without getting the privilege of so doing, by purchase or otherwise, would very likely lose more than he made, so strong is the disposition of our people to give honour to whom honour is due.'

That hero of American apiculture, Father Langstroth, penned Mr. James Heddon the following last year, which is published by his permission:

'He who makes an important invention and patents it, is a public benefactor, and no one who calls himself an honest man should attempt to infringe upon his rights.'

The following are the plain patent claims of the invention of Mr. Heddon:—

'1. Set screws, used in combination with brood or surplus frames, and an outer case, for the purpose of supporting said frames, when inverted.

'2. The use of one-half bee-spaces, when united with each other to form a whole bee-space of about three-eighths of an inch.

'3. A brood-chamber of a bee-hive made in two or more horizontal sections, for the purpose of interchanging, or alternating said sections with each other.

'4. The combination of frames filled with combs, by inverting, and a case closely fitting the ends of said frames, all in such a manner as to leave few or no lodging-places for bees when we desire to shake them out of said case and from among the combs.

'5. The combination of my sink, break-joint, honey-board, with a double brood-chamber, as described.'

The above are the main functions of the late invention, but what they will hold no one knows, as it has not yet been tested in court. Mr. Heddon hopes no one will ever know; and hopes the sentiment of the progressive bee-keepers of the age will never sustain an infringement of his late invention to compel him to ask the aid of the law.

Patent law declares that the maker, user, or vendor of a patented machine, or manufacturer, are each and severally liable to prosecution for infringement.

'The price of an individual right to make for one's own use, and use the new hive, or any of the special featnres of the invention, is $5.'

'Any hive containing even one of my principles, although it may not have the appearance or the name of my hive, will be no less an infringement.'

Messrs. Geo. Neighbour & Sons inform me their British Invertible Hive is, in several respects, similar to the 'Heddon,' but not as imported. I find in their advertisement of 20th January in the *British Bee Journal* that for 17*s.* 6*d.* they offer a complete hive suitable to inter on the summer stand, but now in a more recent issue of the *B. B. Journal* they state for an additional fractional cost they will add to the roof, and a wrapper is in preparation for it.

It is stated in America that the benefits accruing from a use of the genuine new hive are as much greater than those of the Langstroth as the Langstroth are superior to the old-fashioned bee-gums.

A correspondent under the letters 'W. J. M.' in last week's issue evidently has his bee-hives in an unsuitable locality, and I very much doubt whether he has ever seen one real genuine imported Heddon hive much less having a perfect acquaintance with the new system *à la* Heddon, as I am informed that there are not half-a-dozen imported Heddon new hives in this country. How can any person pass judgment upon a hive they have never seen, and which they do not understand?

Will Messrs. Geo. Neighbour & Sons be so good as to state how their British Invertible Hive is superior to that of the new hive, and how it is similar yet different to the imported one; and will good Mr. Editor say if he considers there is any danger of infringing Mr. Heddon's rights by using such hives in this country?

Future notes will deal more particularly with the system of management.—T. BONNER-CHAMBERS, F.L.S., *March 18th.*

[We do not consider that Mr. Heddon has any patent rights in this country.—ED.]

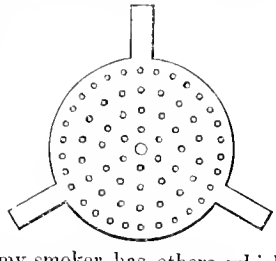
SMOKER FOR BEES.

[883.] In the *British Bee Journal*, issued on 27th January last, careful directions for making a smoker are given, and in the issue of 17th instant I notice that Mr. Cowan is about to publish *Guide-book No. II.—How to make a Smoker.*

Now, as I had found by experience, before the first-named date, that my Bingham smoker was liable to fail me by ceasing to keep alight at critical moments, I had thereby been moved to make a smoker from first principles and remedy its defects, and have succeeded, as I think, in considerably improving on the details of the Bingham type. I venture to think that a description of my most successful smoker may not be unacceptable to your readers.

(1.) My bellows are without valve. Sticking a piece of paper over the Bingham valve will convince the most incredulous that that valve is useless. No one will deny that it adds something to the trouble and expense of manufacture. If experience is not enough, common sense will suggest that air will not lift a valve when it can get in without doing so at the blast-pipe. Lastly, trial will prove that the valve is worse than useless, since it will be found, in ninety-nine cases out a hundred, to allow air to escape from it that ought to be forced through the smoker.

(2.) The grating of my Bingham smoker has only seven and a half holes not obstructed by the bars that are riveted across it to keep it in place, while my new smoker has the whole area of its grating—$2\frac{1}{2}$ inches diameter—*full* of holes, the supporting arm being cut out of the same piece of tin as in sketch. And subsequently turned up at right angles.



The above two improvements are, I submit, of radical importance, but my smoker has others which are convenient if not essential. These are:—

(3.) The diameter of the barrel is increased to $2\frac{1}{2}$

inches to allow another cylinder to be placed inside it carrying the fuel.

(4.) The fuel is contained in a separate tin cylinder $\frac{1}{5}$ inch less diameter than the barrel, slipped ready loaded and lighted into the latter. This keeps the outer barrel cool, and allows two or more loaded interior cylinders to be kept ready for instant use. The interior cylinder is kept out of contact with the barrel by having a few V cuts made in it with a cold chisel while the tin is flat, the points of these V's being subsequently sprung outwards to project beyond the general outline of the interior cylinder and to touch the barrel. The space thus secured between the barrel and interior cylinder is most valuable in reducing the temperature of the *smoke*.

(5.) In place of the hand-guard, my smoker has its barrel covered with a layer of cord neatly wound round it to act as a non-conductor, and this is overlaid with longitudinal strips of mahogany, which are secured by brass bands, just like the 'lagging' of a steam cylinder. This effectually keeps heat from the hand, and presents a handsome appearance.

I have no anxiety now about my smoker being ready whenever I want it.—T. I. N.

IN THE HUT.

'Where the bee sucks
There lurk I.'

[884.] Alas! the hut has been passing through a stage of spring repairs, and the garden-gnome has altered the position of the gnomon of our extemporised sun-dial.

A strange smile, and a sickly, flits over the rotund and jovial countenance of a hutite, as he sees week by week a notice that the Yorkshire Agricultural Show will be held next August, and here we are in the midst of a snowstorm, with the glass at 30° (and 20° during the night) accompanied by a howling north-easterly gale.

Poor bees! your lot is indeed a hard one! After having been tempted and treated on the 3rd and 4th inst., to a feast of pollen and pea-meal, alluringly laid out for you in the golden chalices of the crocus by your ever attentive servant, man, the cup is dashed from your lips, and to-night you will have to beat a retreat up into the honeyless attics of your cells;—attic bees indeed! The wind and sleet are whirling round your porches, and dare you, at your peril, to come round the corners of your stores, or, shivering and shaking, down you will drop. Rough Rab was right when he said,

'The best-laid schemes o' mice and men gang aft agley.'

Reader, have you ever seen anyone in a fit of ague? If so, watch a chilled bee and note the similarity of the symptoms. If the bee be not a little martyr to rheumatism when chilled, my name's not 'X.-Tractor.'

N.B.—(Don't dismiss the idea as unworthy of serious consideration.) Salicylate of soda is almost a specific for rheumatism in animals and men; should not, therefore, the salicylic acid in the artificial food of our bees be the preventive against that chemical change in their life-fluid by cold which, in the human subject is made known to us by an attack of rheumatism, sciatica, lumbago, or whatever special form of the same thing as our own pet little weakness?

We must remember that the rationale of salicylic acid as a preventive and cure of foul brood has not been worked out yet. I am much mistaken if it will not read somewhat like this:—The microbe of foul brood finds it impossible to 'increase and multiply' as it would like, in an antacid condition of the blood. If we get a chill, saccharine substances in the blood become by some means so turned into acids, that we begin to feel that pain which I call rheumatism. Now microbes in the body of the bee, and elsewhere, have the power of turning saccharine fluid into acids. Ergo, I think, if impropitious weather chill the blood of our bees, their bodies are more susceptible, and prone to attack from those myriads of microbe germs (Saccharomyces mycoderma, mycoderma aceti, &c.), constantly on the look out for those starved and atonic subjects, which are ever the first prey to disease.

I notice that at Horsforth our bee-hives are not subjected to freezing temperature until December 1st, falling to 16° by the 3rd, 10° of frost just before Christmas, 16° on New Year's day, and 23° of frost on January 17th. The coldest in February was 16° on 10th, and 12° of frost on March 12th. Altogether the season up to now has been exceptionally regular and even, both extremes being gradually led up to. I think it is the 'sudden change' which does the mischief, as the boy said when he fell off a wall.—X.-Tractor.

MY EXPERIENCE.

[885.] Being a constant reader of your *Journal* I notice all reports and experiences are of a very bright character. My experience of bee-keeping is anything but bright, and I think this spring I am nearly cured of bee-fever.

In 1884 I obtained one skep, which had two swarms, and I purchased one swarm in bar-frame hive, which made four lots. The skep I transferred into bar-frame hive, and I put the two swarms into bar-frame hive. I took 6 lbs. of honey, the first and the only honey I have had. I will say nothing about the expense, as you, a bee-keeper, know what it is to purchase nine stocks and hives, and sugar by the cwts., for I have given them plenty. I have only had two cases of starvation, and these were cases of robbing.

There is something very interesting about a bar-frame hive I had in 1885. It was queenless. I gave a frame of eggs April 19th, 1886, and they hatched three queens April 30th, and May 3rd—drones must be flying in April—I found one dead outside. On May 19th there was fifteen inch super of eggs and brood, and on June 24th I took out this young queen and some of the young bees on two sealed brood combs and put them into observatory hive, and put them into my sitting-room, and enjoyed, and learned, a very great deal about the habits of bees. The hive at once formed queen-cells and hatched a queen, which was laying well in the autumn. The young queen in observatory hive, after laying well and getting strong, emigrated, I don't know where, and left me empty hive. I did not give ventilation enough, so she moved her household.

In 1886 I was going in largely; all my hives were well stored with sealed stores. I set them in one long row, from north to south, facing east, well sheltered from north and east. I put a tiled house over the whole length, and put carpenters' shavings round the outside of the hives in the house, and covered the whole of the roofs of the hives over with leaves, and left them for the winter perfectly dry.

The result was eleven stocks dead, and all of them with sealed stores, so it was not starvation; the remaining six bar-frame hives very weak. One I have examined and put in a clean hive, as it was very foul; the queen seemed strong, but very few bees, but plenty of stores. The only return I have had is 6 lbs. honey, the pleasure of the Observatory hives, and plenty of stings in driving, enough to make me sting-proof. I have doubled the hives when strong, and some I have put supers on top, and the only time the bees would go up into them was when I put my finger there.—John S. Browne, *Albury Heath, Guildford, March 21st*, 1887.

[With the letter a stock list was enclosed confirmatory of the above statements.—Ed.]

BEE TENT.

[886.] It is so much more convenient and comfortable to deal with one hive, and one cluster of bees under control by smoke, than to have to deal also with homing bees of the same hive, or with homing or robber bees of the other hives not under the influence of smoke, that I determined to think out a tent of cheap and easy construction.

I made a clothes-horse of three folds or frames, large enough to enclose a hive, myself, a friend, and a small table; and high enough to allow me to stand up when roof is spread. Mosquito net, of the size of each frame of the horse, is sewn into a margin of tape, and this tape is hooked on to small screws on the frame; thus back and two sides of the tent are formed. A piece of wood, of the same thickness and length as the other cross bars of the frame, has a loop of strong tape (webbing) nailed on at each end. This loop is big enough to slip over the projecting top ends of the fronts of the side frames. On this piece of wood is nailed a piece of calico, rather bigger than the square formed by the three folds and the connecting cross piece. Holes strongly bound with tape are made in this calico at the points where, when stretched as a roof, the side frames meet the back frame, so that when the cross piece of wood is looped over the frames in front, the calico stretched tightly will let the holes fit over the tops of the frames at back and thus form a roof. Strips of cloth from corner to corner diagonally are securely sewn to strengthen the roof to prevent the frames from getting much out of square. For the door, or entrance screen, a piece of mosquito net, rather larger than the corresponding pieces on the frames, is nailed to the front cross bar, and allowed to droop to near the ground: on its edge near the middle, and near the bottom, pieces of tape are sewn for tying the door in windy weather, if necessary, to the side frames.

The tent is now complete with roof, door, and sides; and can be moved from place to place as it is; or by simply pushing up the back corners of the roof, and raising and removing the cross bar, the roof and door can be rolled up on the bar, and the three frames can be folded, either with or without the net on them, and the tent can be stowed away until again wanted.

If more economy is needed old calico instead of net could be used. I use calico for the top as desirable in showery weather or in light rain. I use net for the sides to get air freely, and to allow friends to see the manipulations. With many hives I think this tent will be found useful and cheap. I will not dwell on the pleasure of receiving the warm thanks of the housewife for the nice clothes-horse so kindly made her: all that goes without saying.—T. I. N.

BRITISH AND AMERICAN INVENTIONS: BEE PASSAGES AND SLOTTED DIVIDERS.

[887.] In your Editorial remarks in last year's *Journal*, p. 567, you say, 'We do not forget, too, that the Americans have taken a great many ideas from us, which, unfortunately, they do not credit us with, and *we* are frequently amused and have often alluded to inventions brought out by them long after they have been in use in Europe.' In these remarks I quite agree, but whilst knowing this, let us not fall into the error ourselves and give Englishmen the credit of originating '*ideas*' when precisely the same things have been previously done by Americans and even illustrated in some of their periodicals.

On p. 125 in last week's *Journal*, after describing some of Mr. James Lee's patented inventions, speaking of his section, which, when in position, *of themselves* give passage-ways between the sections, and also between the outside of the crate and the sections, you say, 'and they have a passage way at the ends like in those of Mr. Sambels (see *Journal*, p. 59).' Now these 'side-passages,' as they are called, are an American invention and were first brought into general notice in England by Mr. S. Corneil, when he exhibited and explained his super crate at the meeting on October 20th, which was illustrated in the *Journal* of the 18th of November, p. 531. If you compare this with that shown on p. 59, you will see that so far as the side-passages are concerned Mr. Sambels has simply copied that of Mr. Corneil, although I do not think the latter gentleman was the originator of them, but that it was the invention of Mr. Oliver Foster, of Mount Vermont, Iowa (who, I believe, was also the first to use sections open on all sides).

These passages are formed by nailing two strips of wood on the sides of the crate; whereas the top and bottom of Mr. Lee's sections project, and when brought together the bee-passages are formed without any extra pieces being nailed to the sides to interfere with the removal of the separators, as in that of Mr. Sambels.

Separators.—You also say 'the separators, which are also like those shown by Mr. Sambels, have openings corresponding, forming permanent psssage-ways for the bees.' Here, again, let us not claim this as an English invention. I mentioned, on p. 558, that it was not new, 'having seen it described and illustrated in one of the American bee papers.' In last year's *Gleanings*, p. 698, Mr. W. H. Greer, of Paris, Tenn., U.S.A., referring to Mr. Foster's open side-sections, says, 'Ever since I became acquainted with the open-end section I have felt that it was "*the thing*," but in practice I met with difficulties. It seemed to be intended to be used without separators, and, in consequence, with sections both wide and narrow, I had bulged comb, so I have attempted to devise a separator that could be used with open-end separators; and here it is—

Tin separator, expressly for use in sections, with openings all round.

'The slots are intended to match with the edges of the sections, and will enable the bees to have the same free communication that they have without them. I think the slots in the separators should be $\frac{3}{4}$-inch wide.'

So far as the side-passages and the openings in separators are concerned, I think I have shown that the Americans have the priority of invention. At the Conversazione on the 6th of October, held at South Kensington, I exhibited a crate of sections having separators with openings like that of Mr. Greer. In the *Journal* of November 18th there is a wood-cut showing a suggested improvement by Mr. Sambels, afterwards alluded to by me on p. 558.

With Mr. Lee's sections, as illustrated, and also in the crate on p. 128, described by me, the passages are not only at the sides but there are passages between the sections from end to end corresponding with the openings in the separators (which is not the case either with Mr. Greer's or Mr. Sambels'), there will therefore be no occasion for pop-holes.—John M. Hooker, *76 Tyrwhitt Road, St. Johns, S.E.*

PAINTING HIVES INSIDE.

[888.] There is no doubt that the unprotected wood of the hive absorbs moisture, both from the bees and from the air which enters the hive, which moisture is very objectionable both in frosty and in dry weather. The bees by ventilating their hive can drive out moist air and get in dry air, in dry weather; but if the wood of the hive be wet the dry air admitted becomes moist

and tends to produce mildew, and is, I have no doubt, a source of dysentery.

All my hives are covered inside with a good layer of shell-lac varnish (made by dissolving shell-lac in methylated spirit to produce a solution as thick as thin cream), and put on with a brush. No moisture can be absorbed; no comfortable cracks or corners for insects are left; and the nice clean appearance of the wood remains Honey is easily wiped away, and propolis removed with facility by a rag soiled with turpentine or kerosine, neither of which will touch shell-lac. I consider this varnish much better than paint for interior of hives.—T. I. N.

HONEY BEER.—Boil two handfuls of hops in five gallons of water for fifteen minutes, then strain into an open vessel, let it cool down to 100° Fahr., then mix four pounds of honey with it, and add one or two cupfuls of fresh hop yeast, cover up, and let it work from twenty-four to thirty-six hours, skim off as often as scum rises; roast half-cupful of yellow sugar till it becomes brown, then dissolve it again with water, add this to the beer to give colour; then draw off into bottles or casks and cork well. In two or three days it will be ready for use. This will make a most delicious and cooling drink for farmers and field-labourers in haying and harvest time. Cappings will do just as well, and even better, than honey. When they are well drained of their honey, throw them into a tin pail, pour boiling water over, so that the wax will melt; let cool, remove wax, strain and prepare as above, adding less or no honey at all.—*Canadian Bee Journal.*

Queries.

Queries and Answers are inserted free of charge to Correspondents When more than one query is sent, each should be on a separate piece of paper.

Our readers will greatly oblige us by answering, as far as their knowledge and observations permit, the Correspondents who seek assistance. Answers should always bear the number and title placed against the query replied to. Any queries unanswered in this way will be answered by the Editor and others.

[889.] *Bee-hives.*—I should be very much obliged if any of the readers of the *B. B. J.* who have seen bee-houses either on the Continent or in this country would give me as many details of construction as possible. I want a house to hold 150 hives, at least. I particularly desire to know how near together hives may be placed, so as to avoid queens mistaking the right entrance. Also, what height from the ground is most desirable? Would it be any harm if I put the hives alternately one foot and two feet from the ground? By this means I should get the entrances more separate.—EDWARD J. GIBBINS, *Neath, March 26th.*

[890.] Has any bee-keeper tried mixing formic acid with syrup for autumn feeding, and in what proportion?—H. W.

Echoes from the Hives.

Carrick-on-Suir, Ireland.—I have just had a look over the hives—ten bar-frame and one skep; the latter was a late swarm. Finding it rather light about a month ago, I cut a hole in crown and put candy on it. This did some good, but unfortunately I did not supply another cake in time, and lost the stock, which was a pity, as there was a nice patch of brood showing all was well. Must be more careful next time. The others are all strong, the weakest covering five frames fully. This has been my second year in the business, and I like it very much. I have got over the trouble about stings, and don't mind a few now. The above skep is the only loss I have had yet. My bar-frame hives are all my own make, and I never had an opportunity of visiting a bee-tent or seeing hives, &c.; the little I know is from Cowan's *Guide* and the *Bee Journal*. I am sorry to have to report a great many losses of stocks among my friends. I saw about twelve bar-frame hives and six skeps lost already, and I heard of more. Some that I examined had the frames full of dead brood, which, I think, was from autumn dwindling. I enclose a queen and workers from one, and would like to know what you think of them.—JOHN BARNES. [The bees forwarded are black or British bees.]

NOTICES TO CORRESPONDENTS & INQUIRERS.

H. HARVEY.—*Non-Swarming.*—The garden position would be most conducive to non-swarming; beneath the zinc roof (if not too near it) to honey-getting. Why not try both?

WINDERMERE.—1. *Enamel Cloth.*—Do not remove the cloth. The moisture is a sign that the bees are strong in numbers. A change of floor-board will be an advantage. 2. *Frame Distance.*—We advise you to make your frame distance $1\frac{3}{8}$ inches.

ANGLER.—The sample of honey forwarded is thin and has little body. The honey has lost much of its flavour through having undergone a slight fermentation.

EXPENSIFUGE.—1. *Cowan Hive.*—In Cowan's *Guide-book*, in the chapter entitled 'Hives,' you will find such full instructions for the making of these hives that you will find no difficulty in their manufacture. 2. We are pleased to receive your appreciation of our pamphlet, *Doubling and Storifying.* 3. The suggestions contained in your letter will receive our best attention.

R. WESTLAKE.—The sample of sugar is not 'the most suitable for feeding bees at the present time without being liquefied.' We should advise you to procure Porto Rico or Barbados for dry sugar feeding.

K. DRUMMOND.—The sample, No. 1, is the preferable for dry sugar feeding.

W. BAKER.—Your hive now being queenless, your best plan would be to unite it to another stock when convenient.

R. T.—We should think that the drone observed by you had not lived through the winter, but is a young drone of this season. The date of its appearance as given by you is very early for the presence of drones.

W. P. MEADOWS.—It is not stated on p. 126, that Mr. Blow was 'the first to make slotted dividers;' it is specially mentioned that these were shown by Messrs. Jones and Corneil, but that Mr. Blow had designed a form of dividers which would be of service to the producers of comb honey.

R. T. A.—The address of Mr. Fred. Enock, the mounter of microscopical objects, is Parolles Road, Miranda Road, N.

C. B.—The subject of dry sugar-feeding will be found fully treated in previous numbers of the *Journal*, more especially,—Vol. XIII., No. 147, 'Another Point Gained;' No. 156, 'Dry Sugar Feeders;' Vol. XIV., No. 162, 'Sugar as used in Apiculture;' Vol. XV. No. 238, 'Simplicity in Feeding.'

NOVITAS.—1. *Carniolans and Ligurians.*—Other things being equal we consider that you will find the Carniolans the better honey-gatherers. 2. No particular advantage would arise from the cross of Ligurians and Carniolans, as the two races are too nearly allied. 3. Your suggestion is not practicable.

A. F., ELLIS E.C., AND OTHERS.—*Woiblet Spur Embedder.*—The description should be sufficient to enable any one to make the embedder correctly, and we have no doubt some of our dealers will advertise it. It is made by M. J. A. Woiblet, Sanges, Neuchatel, Switzerland.

H. R.—*Bees in Lofts.*—Many experienced bee-keepers have found it more advantageous to keep bees in the open than in lofts, and have therefore discontinued the practice. The homing instinct of bees would be as true with holes in walls leading to their domiciles as with the entrances of hives in a garden or a field. The overcrowding in our reply had reference to the desirable facility of the bee-keeper in his manipulations.

JOHN ORR.—*Woiblet Spur Embedder.*—There is really only about $\frac{1}{4}$ of an inch at the top where the wheel will not reach, and this can easily be pressed in with the finger-nail, so that there is no necessity for a second instrument to finish off with. We do not think the work could be so rapidly done with the tool suggested as with a wheel.

JOHN DIXON.—*Ants.*—Ants do not generally trouble bees to any great extent, though we have heard of a few instances where their presence has been disastrous, but the hives in such cases must have been very weak.

Show Announcements.

June 23, 24.—Suffolk Agricultural Show at Bury St Edmunds. J. Huckle, Secretary.

July 11-15.—Royal Agricultural Show at Newcastle-on-Tyne. Entries close May 12. J. Huckle, Kings Langley.

July 20-22.—Lincolnshire Agricultural Society at Spalding. Entries close July 4. R. R. Godfrey, *Secretary*.

August 3-5.—Yorkshire Agricultural Society at York. Secretary, H. L. Rickards, Poole, near Leeds.

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THE
BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, St. Martin's Lane, W.C.'

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Editorial, Notices, &c.

WHAT SHALL WE DO WITH OUR HONEY?

This question has been asked times without number, and vaguely replied to in as many different ways. 'Sell it, of course,' would be the ready and common-sense response of the apiarian who keeps bees for profit. But do the producers always go the right way to work to attain their object?

Honey at present is not a daily article of food, and is by no means a household requisite; but, 'It should be,' says every reader of the *Journal*; and 'These are my sentiments,' re-echoes the honey producer. 'Every Association is endeavouring to advocate this,' replies a third. But, in our opinion, much depends upon the bee-keeper himself. 'How so?' we fancy we hear a score of enthusiasts exclaim. To such we remark, 'Be patient.'

Honey was used by the ancients as a daily article of food; but gradually, through causes too well known for repetition here, it discontinued to be considered a domestic requisite, and till within a few years since was looked upon more as a luxury. Happily this state of affairs is slowly vanishing, and by the many laudable endeavours of lecturers and writers in bee periodicals, the good properties of honey and its great value as an article of diet have become more widely known. 'If this is the case, why trouble yourself any further?' would be the taunt of the near-sighted critic; 'bide your time, and the demand and production will equalise themselves.'

In this go-ahead age this will not answer; we must ever push on; failure in one direction must only stimulate to redoubled perseverance in another. We must create a demand for honey, and if we succeed in this before long we shall find the production barely equal to keep pace with it. At one time the great importations appeared likely to swamp our little industry. Prices, it is true, have gone down, but parallel with this, the brimstone pit is dying out: a more humane system is practised; larger quantities of honey are produced of a quality which will hold its own against all comers, and bee-keeping is steadily becoming a national industry.

Bee-keepers *talk* of honey as food, &c., but in how many cases is it absent from their tables, how little is it used by them! To such we should say, 'Practise what you preach.' 'All very well, Mr. Editor, but our bees must pay the rent.' How much better than buying butter at 1*s.* 6*d.* per lb. (often nothing better than butterine), cheap jam, sugar, &c.—injurious to health—if some of the honey were used in the house, and the money which would have been spent on the above commodities saved for the rent. Health would be maintained, and, in the end, a better price would be realised for the remainder of the stock of honey.

It is reckoned that there are about ten thousand members belonging to the various Associations. Many are non-bee-keepers, but then there are apiarians who are non-members, so if we look upon this number as producers of honey we shall be well within the mark. Now, if our advice is taken, and we average the consumption at half a cwt. for a year per household (being a trifle over one lb. per week), we shall at one sweep dispose of the large amount of 250 tons. We feel confident that all would be the richer by this, and that the results would prove more than satisfactory.

JOTTINGS BY AMATEUR EXPERT.

'Mel sapit omnia.'

I beg to congratulate Mr. James Lee on the latest evolution he has given us from his fertile brain. It is very clever, and I hope he will not be disappointed as to price of production. I am sorry they cannot be produced in bulk in time for this season. My congratulations extend to Messrs. Neighbour also for bringing him to the fore after a season of comparative obscurity.

Mr. F. Boyes wants some one to 'speak out' about foreign bees. He says, amongst other things, 'Carniolans were dismissed long ago,' &c. Allow me to tell that gentleman that Carniolans are the bees of all others for timid bee-keepers. They are probably not *the* best honey-gatherers, but they will require some beating at that; and as to gentleness, they are far and away ahead of all kinds. I need not say I never sold a bee or a cent's worth of appliances as a dealer in my life, so that his other remarks do not apply to myself; and I am all the more free to recommend them, especially as we are likely to be able to get a better article imported than formerly.

During the past week I have been into the country north of London amongst the Middlesex bee-keepers; they are developing an amount of energy that speaks well for the future of their Association. Very gratifying it is to hear a departed friend for whom one has

great regard spoken well of when going over the ground after him. I felt it so in respect to the late Mr. Fox Kenworthy, so bright and cheerful, but quiet and unassuming as he was, for whom one could have wished a long life of usefulness, but early called away to—

'That great cloister's stillness and seclusion,
By guardian angels led,
Safe from temptation, safe from sin's pollution,
He lives.'

I see my friend, Mr. Graham, has given 'A Beginner' the size of a bell-glass to hold 35 pounds of comb honey. Will 'Beginner' kindly say what he will take for it nicely filled and sealed?

Mr. Webster does good service by pointing out that 'scent' is no guide as to the purity of foundation. Many boil their wax, especially if it is adulterated, in honey for the very purpose of giving it 'a good nose.' I know of a fine batch of paraffin wax boiled in lime honey, and sold as bees-wax to a dealer, but the purchaser was too keen to be caught so easily, and, moreover, had too great a regard for his reputation in the matter of bees-wax.

Here are a few extracts from the *Canadian B. J.* of March 2nd in reply to a query on inverting frames:—

Dr. Duncan.—'Never tried them.'

H. D. Cutting.—'Bees doing well enough without it, so do not practise it.'

H. Couse.—'Do not use reversible frames.'

Judge Andrews.—'I avoid the use of any humbugs, hence do not know what antics the poor bees may cut up, but suppose they might possibly retain their usual common sense—would not do useless work!'

Dr. Thom.—'Never used them, cannot afford to "advance" fast enough to throw away hives every year or two when new are placed on the market.'

S. T. Pettit (President Ontario B. K. A.)—'Never tried them, and thinks he never shall; knows he is out of fashion, but fashions change, and is strongly of opinion that if he remains where he is with respect to invertible hives, in a few years he will be in fashion again. The word inversion has another meaning than that intended for it to convey here, but we may all better understand the other meaning later on.'

Rather warm of the 'Judge;' fancy I would like to spend an hour with him. 'Peck-a-boo' is giving a very interesting account of the visit of the Canadian delegates to England in the *C. B. J.* week by week. Read it!

Send Mr. Grimshaw to Coventry! Dear me, no! He is far too good a fellow for that. Our humourous friend, the Rev. J. Lawson Sisson, tells me 'I hit the nail on the head in a way I little thought, Birmingham is the place for hardware.' I am slow at puns, so give it up. Mr. Grimshaw has had his revenge: I will tell him a secret ('A. E.' does not want a Febrifuge, 'Useful Hints.') The lady that is queen in my hive suddenly developed an interest in the *B. B. J.*, so during my absence she got the first reading of Mr. Grimshaw's letter, and exultingly met me with, 'Mr. Grimshaw says you are a "*Brute*," and so you are, three of you to set on one.' Latin was no part of a lady's education in the good old days when Mrs. 'A. E.' went to school. 'A house divided against itself——'

But Mr. Grimshaw has fallen into a slight error. Messrs. Cowan and Raynor and some others have always freely given the result of their brains to bee-keepers, merely giving the patterns of their new appliances to some one of the many manufacturers whom they can recommend as giving good work at a fair remuneration, but they have no agents for, nor pecuniary interest in, the sale of any of the appliances that bear their names. Mr. Cheshire adopted a course similar to Mr. Grimshaw with regard to his 'Phenol,' with the result that he got disappointment and annoyance where he hoped for, at least, some slight remuneration. I certainly did not wish to impute meanness to Mr. Grimshaw, but only wanted to keep him clear of what will probably mar his future career of usefulness to the Association.

Thus far last week, but was crowded out in the cold. Arbitrary people are Editors—at least some of them; but the (B) world goes round as usual, although it left behind—for one week at least—AMATEUR EXPERT.

BEESWAX AND ITS CONVERSION INTO MONEY.

(*Continued from page* 126.)

Beeswax then is not found ready-made in nature, but is a production of the bee's body; it is like honey, an organic production, and not a mechanical or technical one. Wax is formed in the body of the working bee, of fluid honey, and pollen. But it is not formed involuntarily, as every well-nourished animal body forms fat, but voluntarily, viz., it is formed when the bees wish to form it, viz., when they have taken fluid honey, and pollen, in a larger quantity than they need for their own bodily nourishment, and the surplus is neither given as food to the brood, the queen, nor the drones, but is retained, further digested, and allowed to pass into the blood-vessels, in order to be organically, chemically distilled there, and to be separated as a kind of fatty matter by the segments of the abdomen.

The wax leaves the separating organs in a fluid state, and solidifies in the form of small transparent white little scales, five-cornered, shining like mother of pearl, about two square millimetres in size, as are found in large numbers on the floor-boards of a strong building colony.

When the bees want to build a comb, they hang together in the form of a bunch of grapes, by which a certain amount of order is observed. The bees do not hang irregularly one upon another by their hooklets or their feet, but the whole bunch is formed by the bees holding together in the form of a chain. The great heat generated in the bunch of bees facilitates the separation of the wax from their bodies.

Newly-built combs vary in colour from a light yellow to an orange red. It is remarkable that a light yellow wax comes from dark kinds of honey like, for instance, heather honey, and a dark orange red wax from white honey, as, for instance, vetch honey.

This circumstance, which Mons. de Layens, a well-known bee-keeper and author in France was the first to notice, led this sagacious inquirer to think that the colouring of the wax is probably owing to the pollen, which was also chemically proved last year by Dr. A. Von Planta, the famous Swiss chemist.

Beeswax consists of two different combinations. It is a mixture of cerotinic acid (cerin), which is soluble in alcohol, and of melissin or myricin, which is only slightly soluble in alcohol. Besides these constituents beeswax contains organic colouring matter, as well as other organic matters, which latter are separated in the purifying. The colouring matter bleaches best in the clear sunshine, when quite pure the wax forms a completely white, colourless, and tasteless mass, which in thin scales is very transparent, shows a splintery fracture, and at 20°C. assumes that peculiar kneadable condition which is especially described as 'like wax.' The melting point of wax is very high, between 63° and 64°C., and the latter is a good means of recognising the genuineness of the production, together with the specific weight, which lies between 0·965 and 0·969.

The preparation of wax not only makes great claims on the vital powers of the bees, but also costs them, as well as the bee-keeper, much honey. It has been calculated that for one pound of wax, from ten to fifteen pounds of honey are needed, without counting the loss of time caused by the building. Von Berlepsch makes the proportion from 13 to 1, Dr. Dönhoff from 14½ to 1,

and Cowan estimates the production of wax at 20 to 1. But 20 lbs. of honey are worth 20 marks, while for 1 lb. of wax one gets only 2 marks. A judicious bee-keeper will see by these figures how valuable good combs are.

(To be continued.)

GLEANINGS.

In the *Bee-keeper's Guide*, M. Mahin says that in the breeding season there is little difficulty of getting rid of fertile workers, but late in the season when brood-rearing in normal colonies has ceased, and queens cannot be reared and fertilised, the difficulty has been found to be much greater. It is a remarkable fact that colonies having laying workers will continue to raise drone brood long after breeding in other colonies has ceased. In fact he does not know that they would cease at all until so reduced in numbers that they could no longer care for their abnormal brood. He has discovered a method by which a queen can be introduced into a laying colony having laying workers at any time. He puts a young impregnated queen in a cage that contains food enough to last an indefinite time, and then cuts out a piece of comb in the centre of the space occupied by brood, and inserts the cage in its place. The hive is then closed and left undisturbed for about eight days, when he opens it and fixes the cage so that the queen could find her way out, and as quickly and with as little disturbance as possible closes the hive up again. He says he has reason to believe that this plan, if carefully followed, will always succeed.

In the *Bee-keepers' Magazine* J. Aspinwall, in speaking of the colour of wood from which sections are usually made, says he has his doubts as to white wood being the best. He says that when a jeweller wishes to exhibit the beauty and the brilliancy of his diamonds, or the purity of his pearls, he does not place them either on a linen sheet or a white velvet cushion. He groups them artistically upon a dead black cloth, and goes so far as to paint the outside and the inside of his show-window a deep black. The darkest buckwheat, he says, would look white if it could be got into ebonized sections. Propolis would not show so much on such a section. Although an extremely white section may be beautiful to look at alone, when contrasted with the honey it contains it must be admitted that it detracts from the beauty of the latter, and were the section dark-coloured, the honey would look all the whiter. Buckwheat, he thinks, would command one cent or two per pound more could we make it appear lighter by contrast with a dark section. He thinks it worthy of a trial in the markets.

In the *American Bee Journal* the Rev. L. Johnson says that the reversible hive has only been tried by its inventor and one or two others for two seasons. These men are practical apiarists, and in their hands it has done well; but when others, with less knowledge and without properly understanding what is intended by this hive, undertake its use, it may receive a backset from which it may not recover for years. He is in favour of making every progressive step in bee-keeping that is possible, but so much enthusiasm often ushers in a new thing as to do it harm. He urges bee-keepers to carefully ponder before doing away with the old, tried, and profitable standard hives which we now have and adopting something we do not yet understand. Take hold cautiously, and let those who have the time and money with which to experiment enjoy the benefits for a time.

In the *Bulletin de la Société d'Apiculture de la Somme*, Ph. Jacques Baldensperger, who resides at Jaffa, says that during the months when the sun shines he has not much time to spare. This is from the beginning of March, when the bees prepare for swarming and collect honey from orange-blossoms; after this yield of the month of April, comes a moderate harvest in May from Barbary fig, and in July the principal harvest in the year is collected from thyme, which is as good as that from orange. Between the harvests the time is spent in rearing Palestine queens, as well as Syrians at Beyrouth, at the foot of Mount Lebanon, a journey of twelve hours by steamer from Jaffa, and with sending them off to England, America, and a few to France and Germany. England takes more than all the other three countries put together; and it is there that bee-keepers have properly appreciated the value of the Oriental races—the Cyprian, Syrian, and Palestine bees. He spends his time in Jaffa from October to June, and in Jerusalem from July to September.

In the *Journal of the Royal Microscopical Society* we find that Professor G. A. Barbaglia has examined the chemical constituents of wax found chiefly on the upper sides of the leaves of *Buxus sempervirens*, and finds that, like Chinese wax and bees-wax, it contains palmitic acid.

Foreign.

SWITZERLAND.

New Experiments calculated to ascertain the Proportion of Honey used by Bees in the Production of Wax.

(Continued from page 139.)

I will now explain, therefore, what were the circumstances I placed myself in when I undertook my experiment.

1st. My stocks had been allowed to work freely in the apiary, without interferences, so that that nothing could be altered in the natural order of their duties.

2nd. My experiments were made at a season when temperature was high (maximum at least 20° Centigrade), this being the temperature which bees, in their natural state, choose for the production of wax.

3rd. I had also selected for my experiments a season when honey was rather scarce, so as to be sure that the stocks which were building, as well as those which were not, had sufficient room in their combs for storing all the honey they could bring in.

4th. I experimented on two stocks of my apiary which differed in strength as well as in quantity of brood, but which, judging from external appearance, both worked with about the same amount of energy.

Now, these two stocks, which I will here call A to the strongest, and B to the less stronger, were both reduced to the condition of a swarm. To A seven built frames were given, beween which I inserted empty ones. This I did in order to feel that the bees were obliged, as it were, to build, and that at the same time there was a sufficiency of built combs to receive the incoming honey, and that, moreover, the egg-laying propensity of the queen would not be checked for want of room. To B I gave eight ready-built frames; here the bees could not build combs for want of space.

5th. I made two experiments, one after the other, and each one lasted exactly eight days. At the end of the eighth day all the combs were taken away from the hives and replaced by others, but the order was reversed; here, then, B was placed in the necessity of building combs, whereas A was prevented from doing so. This crossing system is an important one, as it permits, whilst experimenting on any two hives, of obtaining *data* for comparing, by simply adding, at the end of the experiment, the differences which are noted between them.

6th. At the conclusion of the experiments, the honey collected by the colonies A and B (which did not make any wax) was added together; so was also the honey of the colonies A and B (which made wax). Lastly, the quantity of wax made by the two colonies was added together. Owing, however, to great dampness, the honey gathered during the sixteen days of the experiment contained a considerable quantity of water, consequently at the end of the time none of the cells had been sealed

up. The honey, which was very thin, contained, therefore, more water than that in the sealed-up cells. In order to neutralise this misleading circumstance, I ascertained the thickness of the sealed-up honey as well as that of the thin liquid one (honey) which had just been brought home. This done, I added a sufficient quantity of water to the honey which had been sealed up by the bees, until it had been brought to the same degree of thickness of that which had not been sealed up. By these means I was enabled to arrive at the extra quantity of water contained in the honey which had just been gathered, and I deducted this quantity of water from my calculations. Finally, the difference in the quantity of honey gathered by the stocks which built combs and that of those which did not build indicated the weight of the honey consumed in the production of a given weight of wax.

7th. During the sixteen days my experiments lasted, the queens did not lay a uniform number of eggs, as they were not of identical fecundity. Nor did it happen that during the same period the laying of eggs by these two queens did progress with the same disproportion; as a result of this, in the stocks which had not been building, 16,064 eggs were laid, whereas in those which had been building, the number of eggs laid was 16,634, or as near as possible the same number. This small difference of brood represents a quantity of honey consumed the weight of which must be added to that gathered by the stocks which had been building comb. But as the eggs did not open until the end of three days, and that it was only then that they began consuming honey, the number of larvæ which had been fed was 358. It is the honey consumed by these that must now be arrived at.

According to the investigations made by Berlepsch, 47 grammes of honey and pollen would have sufficed to feed these 358 larvæ until they closed themselves up in their cell. Other experiments, made by myself, show that to feed their brood bees use about as much honey as pollen, consequently 25 grammes will be the maximum quantity of honey used up by my bees in the partial feeding of this brood, of which only a few cells were sealed over.

We find, therefore, that the difference in the quantity of honey gathered was one kilo and 202 grammes. That of wax produced 191 grammes. My bees had, therefore, used 6 grammes, 3 of honey in order to produce one gramme of wax.

In previous experiments my bees had started comb-building on eight frames, and as the honey yield was an indifferent one, with the exception of the first day, they built almost worker comb throughout—I say almost, or nearly so, because in a corner of the largest comb there were to be found a few drone-cells; the latter had been built the first day, when the honey yield was greatest, almost two kilos having been brought in.

It will be seen, therefore, that in practice it is possible to get bees to build worker-combs rather economically by feeding them with a cheaper kind of honey, say some of the foreign kind, to be had on the Havre market at from 50 to 60 francs the 100 kilos. But, to obtain this result, three things are essential, viz.:—

1st.—A rather poor yield of honey.

2nd.—The removal of all the brood-combs of a hive, to be replaced by empty frames, the latter to be placed between the full ones. The brood-combs removed, will be given to a weak stock.

3rd.—Never to induce comb-building unless when the temperature is high.—G. DE LAYENS, *Bulletin d'Apiculture de la Suisse Romande.*

ITALY.

According to our contemporary, the *Apicoltore* of Milan, the Co-operative Bee Association of Molisana, called the *Società anonima cooperativa per l'apicoltura Molisana,* was bold enough a little while ago to spend 1920 lire for a model apiary, the management of which has been entrusted to a noted expert, Signor Ferdinando di Jorio di Spinete, and now has invested in addition thereto the following sums in connexion therewith, viz.:

	Lire.
For the purchase of 64 stocks	2400
For the purchase of 20 ditto in common skeps	400
For the registration, &c., of the Society	115
Sundry duties	50
Bee implements	85
Office expenses	50
Insurance, &c.	20
Total	3120

It is reported, adds the same journal, that there is every reason to anticipate a fair dividend at the end of the coming season.

CURIOSITIES OF BEE LIFE.—This formed the subject of a very instructive and interesting lecture delivered on Friday night, March 25th, to the members of the St. Silas' Mutual Improvement Society by Mr. R. A. Grimshaw, of Horsforth, member of the Naturalist Society. The chair was occupied by Mr. B. Holgate, and there was a large attendance of members and friends. The lecturer observed that the honey-bee seemed to be developed under a never-erring guidance into a creature gifted with something much higher in the mental scale than instinct—nothing short of reason could account for the many marvellous things it performed. He then entered into a lengthy and elaborate description of the peculiar functions of the queen-bee, the duties of nurses or new-hatched bees, the keeping watch over the hive by sentinels, or stay-at-home bees, the expelling of drones on the approach of winter, and the duties of the foragers, or workers, which commenced in spring by visiting the earliest blossoms for pollen or bee-bread, which they used in the rearing of young bees, and collected in a receptacle on each hinder leg. The process of gathering the nectar from various flowers, of storing it in the cells of the hive, and of its ultimate conversion into honey, were next minutely described by the lecturer. The subject of swarming was next touched upon, the lecturer remarking that a strong hive or stock of bees consisted of some 30,000 or 40,000 workers, &c., and as it took 5376 bees to weigh a lb. of themselves they will weigh about 6 lbs. The operations of the bees throughout the winter were next touched upon, showing how they cluster on the honey-combs somewhat in the shape of an inverted saucer. The lecturer concluded by remarking that in whatever direction we turned our studies we perceived the marvellous wisdom of the Creator in providing for the wants of all living things, both great and small, as completely in the minutest degree as for man himself, and that everything in nature had been fashioned in a marvellously intricate festoon of harmonious dependence and enjoyment, yet everything existing for the glory and praise of the Maker of all things.

LECTURE ON BEE-KEEPING.—A lecture, under the auspices of the Working Man's Club, Ascot, was delivered at their comfortable Hall, Ascot, by Mr. W. B. Webster, on Monday evening, March 28th; the chair being taken by the Rector. The Hall was well filled with a very appreciative audience, among them some very old skeppists, who expressed great astonishment at the results which Mr. Webster showed could be produced by the modern system. After a hearty vote of thanks to the lecturer the company spent some time in examining the different appliances shown, some converts being the result.

HIVE CONSTRUCTION.—Mr. Cheshire, in *Bees and Bee-keeping*, and Mr. Raitt, in the *Bee-Keepers' Record*, gives the *honour* of an improvement in hive-construction to Mr. J. H. Howard, Helme, England, which in my humble opinion ought to be given to my neighbour, Mr. Andrew Buchan, Dalkeith, Scotland. The improvement referred to is described by Mr. Raitt in the following words; 'The more recently made ones avoid the necessity of outside plinths to cover joints—a clumsy plan at the best—by having all their parts made to break joint in the solid wood. Thus the hive proper covers the edges of the floor-board, each hive section does the same to the one below,

and the roof similarly fits on above.' This description equally applies to Mr. Buchan's Midlothian storifying hives, designed by him in 1885.—Wm. Purves, *Dalkeith.*

'Bee Bobs.'—In some districts swarms are secured by preparing a hive and placing it on a small table furnished with a white cloth, some little time before the swarm comes off. If this plan is reliable, it might be adopted for making the 'hive' into a 'Bee Bob' by dropping in block, then fix three legs made 4 × 3 × ¾ thick, feet pointed or spiked, then make a ¾-inch round hole in each leg at a suitable distance from the top of each, through which pass two garden sticks (the legs arranged tripod fashion), one stick passes through the holes in the two legs, the other through No. 3, its end resting on the cross stick, on which place the floor-board. Bore a small hole in the top of each leg, through which pass a short wire pin put in at an angle upwards to penetrate the skep. If the swarm do not accept and are about to settle on a bush the tripod may be carried at once to where the cluster is forming, if it can be placed over the cluster the greater chance they will ascend, or if not, may be caused to go up by the aid of smoke or a feather dipped in the carbolic mixture.—W. G.

Moving Bees.—I should like to suggest to any one about to move bees, if obtainable to secure a donkey and truck for the purpose. I have just moved my apiary about 2½ miles, four hives at a load, without any other preparation than perforated zinc over the entrances. I have not one item of damage done to them. The slow and short steps of a donkey make him the most suitable for this purpose. My moving was done each evening, after the bees had gone to rest.—C. H. Bickley.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Upper St. Martin's Lane, London, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. Huckle, *King's Langley, Herts (see 2nd page of Advertisements).*

*** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

R. R. GODFREY'S GUIDE FOR JUDGING HONEY.

[891.] I have occasionally noticed in Bee Journals expressions of dissatisfaction from correspondents with the awards made by judges at some of our exhibitions. Possibly they may have had just cause for being dissatisfied. On the other hand, I may remark, it is no unusual occurrence to find exhibitors dissatisfied when they have no reason to be so. That errors in judging do occur few will deny; and with a view to lessening such I have prepared the enclosed Guide, which I venture to think will (if followed) be effective.—R. R. Godfrey, *Grantham.*

Points to be considered in the Judging of Extracted or Run Honey, with a Standard of Marks obtainable for each point, and remarks on quality desirable as a standard of excellence.

		Marks.
1. *Flavour.*	Full and palatable	25
2. *Condition.*	Clear, free from *débris* or sediment, and of even consistency	21
3. *Density.*	Thick but liquid, free from appearance of candying	18
4. *Colour.*	A deep, bright amber	15
5. *Bouquet.*	Fragrant and pleasing	12
6. *Form shown.*	Attractive, neat, clean	9
	Total	100

Honey that may be candied should, however, not be passed, from the fact that it is so, should it have other desired qualities.

Points to be considered in the Judging of Comb Honey.

Sections.

	Marks.
1. *Flavour*	25
2. *Density*	18
3. *Colour*	15
4. *Bouquet*	12 — 70
(Remarks as for extracted honey).	
5. *Completeness.* Combs fully worked out to section—comb well attached to top, sides, and bottom, all cells even and regularly sealed, nice delicate colour and dry, preference to those produced with least trace of guide-comb	21
6. *Form shown.* Attractive, neat, clean	9
Total	100

Glass and other Supers.

	Marks.
1. *Flavour*	25
2. *Density*	18
3. *Colour*	15
4. *Bouquet*	12 — 70
(Remarks as for extracted honey).	
5. *Completeness.* Combs fully worked out, all cells sealed even and regular, nice delicate colour, combs straight	21
6. *Weight.* Such being so varied must depend upon conditions of schedule	9
Total	100

P.S.—Any comb having had brood disqualified.

Points to be considered in the Judging of Hives, Extractors, and Collections of Bee-keeping Appliances.

Hives.

	Marks.
Construction, completeness, and simplicity of arrangement	40
Nicety of workmanship and accuracy of fittings	30
Soundness and quality of material	20
Price and value	10
Total	100

Extractors.

	Marks.
Efficiency	30
Simplicity	25
Substantialness	25
Portableness	10
Price and value	10
Total	100

Collection of Bee-keeping Appliances.

Hives, extractors, articles applicable to bee-keeping in single, largest number, their utility generally, nicety of workmanship, and finish of all.

DO BEES HEAR? [874.]

[892.] This must ever remain but an hypothesis, since we cannot obtain absolute proof of the theory; yet the doubts as to their power of hearing may be reduced into such small compass by evidences in favour of the affirmative side, that it may almost be considered as an established fact that bees do hear.

Primary and almost satisfactory testimony is offered by the knowledge that bees possess (1) vocal organs and (2) organs justly supposed to be aural because of their peculiar anatomical construction, differing as these latter do from the touching, the smelling, the seeing, and the tasting organs. Now if *we* have our five senses, all of which we use, and the bee has quite similar mechanism to our own, which we admit it uses in four

out of the five cases, is there not strong *prima facie* evidence that it uses the fifth (the hearing) sense, especially as it uses its correlative the vocal organs?

In a general survey of animated nature one may find individuals of sex not using organs with which nature has provided them, but never do we find any species endowed with any complete (that is, not aborted) apparatus which does not, as occasion requires, call such apparatus into play. Here we have hollows on the antennæ of our bees; a thin film or diaphragm is stretched across each hollow, and opposite and in contact with this film is the end of a nerve connected with the brain. Given a suitable, perfect, useful apparatus, and the use of it follows. Given a chronometer, and its use follows as a logical sequence.

Mr. Dunster (874) cannot get his bees to *show him* any response to the report of a gun, but does he give any outward and visible sign that he hears it? Sir John Lubbock found it necessary to qualify his opinion against bees having the sense of hearing by saying that his evidence was only of a negative kind—that he does say they *cannot* hear, but only he cannot make them give evidence of it.

To simplify the question of auditory operation, or hearing, may we begin by requiring, as the only conditions—(1) a vibrating, (2) a conducting or transmitting, (3) a receiving medium? (It is not necessary that air should be any of these.) Let us place the ear on a railway metal at the end of a tunnel, and we can hear a train enter at its other end; the end of a tuning-fork put to the teeth, or the ear at the end of a long rod or table, will show us that once the power of hearing be given, the means may vary, but each goes to prove the existence of the sense. The blows of an axe or spade vibrate the earth and send the mole *down* into its deepest chamber. The same blows send *up* the worms who think the vibration is caused by the burrowing of their enemy the mole. Reasoning thus, some birds actually stamp the ground in order that they may get a meal of worms. Thus the moles and worms hear, as do the bees when the slight touch or shake, or the heavily laden wheelbarrow, Mr. Dunster speaks of, are brought into play.

There are very many instances quoted of bees hearing: a very telling one being given by Mr. Cheshire, who saw a small knot of bees in an obscure part of the tent commence ascending, immediately the swarm in a driving operation began running into the upper skep. When a skep of bees is thrown on to the sheet in front of a frame-hive, the instant those nearest to the door get on the march there is a sound we all hear and know, which puts the lot to the 'right-about, quick-march' in the desired direction. This movement is so sudden that the peculiar merry hissing or hushing sound is in all likelihood the signal to march; and although the crowd is so great that the citadel gate will not admit them, march they will 'onward and upward,' like so many silly bees as they are, just because they are told to, exactly as they will commence fanning in the most absurd position just because the word was passed to fan or they heard some sisters fanning. I contend that bees *do* hear.—R. A. H. Grimshaw, *Crag Hill, Horsforth, near Leeds.*

SLOTTED DIVIDERS.

[893.] On page 143 of *B. B. J.* (887), Mr. Hooker has given your readers his version of 'slotted dividers,' amongst other matters, claiming them as an 'American invention.' I will endeavour to give the facts about them, so far as I am concerned.

When Mr. Corneil exhibited his super crate at the meeting on October 20th last year, the moment he sat down, I stepped up to him and suggested cutting slots in his dividers, and that gentleman's reply led me to the conclusion that the idea was as new to him as it was to myself, as I had not up to that time been so fortunate as to see it in *Gleanings*, nor was I aware until a fortnight since that Mr. Hooker had brought out a new section crate, so that Mr. Hooker did not help me towards the idea. I exhibited my new crate at Hertford, and Mr. Corneil, who was my guest at the time, said nothing to lead me to judge that he had seen or heard of the idea across the Atlantic.

I was careful at the Conversazione in Jermyn Street (see *B. B. J.* page 60) as to what I claimed as my 'inventions,' and Mr. Hooker, who sat opposite me at the time, said nothing about his own crate or the idea being an American one; and if Mr. Hooker thought the idea worth anything to bee-keepers, I am surprised that he did not bring it to our notice before.

I am pleased the idea is likely to become general; my thanks are due to Mr. James Lee for giving credit to where—as far as he was concerned—credit was due.

Mr. Hooker should be satisfied with describing his own super without disparaging other people's; what he said about the sections falling out of mine when the screws were loose was 'bogie.' I think I satisfied the Southgate bee-keepers on the 24th ult., that a fair amount of jarring could not jar them out. As it happens it does me no injury as I have no pecuniary interest, but we look for some observance of the golden rule.—J. P. Sambels, *Cole Green, Hertford.*

NOTES BY THE WAY.

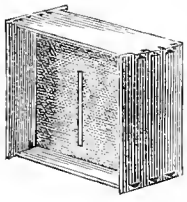
[894.] From 'Useful Hints' notice concerning improvements in frames and sections I for one was anticipating something far beyond the construction given in the Editorial illustrated in issue of March 24, and I am bound to say that in neither frame nor section is there aught original save the *adapting* of the running dovetail joint and the bottom rail as a foundation guide. This latter in practice will prove a sad mistake. So far as providing for full sheets of foundation in the bar-frame practically wiring is preferable. But here let me ask, is it wise to exclude drone-rearing in drone-cells proper? also can drone-rearing be frustrated entirely, even though all worker-cell building may be tried a compulsion? My experience has proved otherwise. Then why not *slightly* encourage nature's effort and allow for the same? I mention this, as a special feature is noticed that comb-filled frames will be the result with 'Lee's' frame. Such may be, for a first season, and perchance many *dwarf* drones attending, where a brood-chamber is completely furnished on such principle; but has ever any bee-master found the standard frame in *successive* use, that the bees respect an even and well comb-filled frame? Therefore, as passage-ways more or less through, below, and at side of combs, are shown a *necessity* in positive use, why at the start completely ignore them?

I give an illustration showing a frame which in practice will compare more than favourably with 'Lee's.' The top bar and sides are grooved to just where the latter diminish. The foundation can be placed into groove either before or after the bottom (dovetailed) rail is added. A slight addition of molten wax holds foundation secure; and is the latter cut at corners, as shown, here drone-cells proper are found constructed in most cases with a young queen to suit and satisfy all her need.

The thickness of top bar between sides is $\frac{1}{2}$ inch, and shouldered as the Simmins' frame, for the $\frac{3}{8}$ inch lug, just keeping the latter always to size for those who prefer metal ends, and at the same time the top bar is *strengthened* by an extra thickness, nor is it an already weak bar; still further weakened by separation. Again

with a sheet of foundation held as shown all sufficient room for expansion is allowed; and if it is of such strict necessity to have a comb-filled frame, just run the first season without the bottom rail, and after the bottom edge of worked down comb has been cut away to receive the same put the rail in place: but this is a useless work, as I have before remarked.

Again, as to sections. Dear me! little did I think a six-piece section would be heralded in as a step forward, when the four-piece section and double top rail sections for holding the foundation, making a five-piece section, had fallen away, giving place to the one piece V cut; and I certainly felt we were going backward when I made the four-piece section, of which I send you illustration. This section the four sides are grooved to receive the foundation, as shown. The foundation is cut by a special tin die to exact size, and at same time the centre bee passage is also cut, which allows of expansion until such time the bees have made sound and strong the same by extended cells.



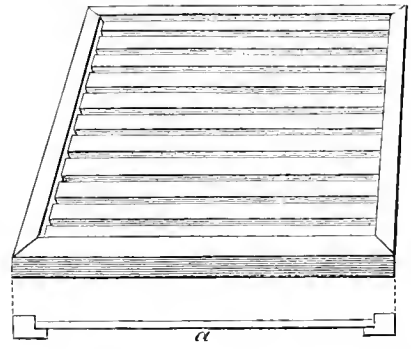
Now we come to slotted dividers. Well, here I think Mr. Hooker's letter, No. 868, proves design and originality, neither is there anything in providing 'special machinery' for their production. 'Dies' for the same long ago I could place my hand upon not many miles from here. These in wood especially, with much other which is now agitating the new hand, will be tried and found wanting; many old hands, who could produce honey under every disadvantage, will abide well-nigh stationary in limited trial only. Mr. J. Hall, No. 876, gives an ingenious *one way* watertight joint, but how about the 'tother way up?' Mr. F. Boyes (877) entirely I endorse. Last, though not least, Mr. W. B. Webster, 871, on 'Foundation.' Has he a *foundation* for asserting that one, or more, or the whole of British foundation-makers are dishonest? Would it not be far wiser for him to give his tests (of which there are several more simple and less inexpensive than his last) and so expose the guilty, rather than say all 'must not be tarred with the same brush,' yet still leave us all liable to suspicion? Were we all near Mr. W. no doubt he would not go to Mr. Grimshaw for help, but have to find the oldest of all 'fuges,'—Refuge,—from the angry storm.—J. H. Howard, *Holme, Peterborough.*

CRATES AND SECTIONS.

[895.] As economy is a great point to be considered in bee-keeping in order to make a profit at the present, and in all probability future, low prices and slow sales, it has long since occurred to me that a single-walled hive for summer use, having a good watertight outer case, to be packed with chaff, &c., if it should have to be wintered out-of-doors, would be the most economical as well as the most useful; in fact, just such a hive as that described by Mr. McKnight, of Ontario, on page 72 of this *Journal*. The body of the hive might be made of one inch and $\frac{3}{4}$ inch wood with $\frac{1}{2}$ inch rabbets in the former to take a standard sized frame (but with top bar only $15\frac{1}{2}$ inches long). Such a hive with ten frames and a thin dummy would be $16\frac{1}{4}$ to $16\frac{3}{8}$ square, still there would yet exist the crate difficulty, outside lifts and deep roof, being required if we use the $4\frac{1}{4} \times 4\frac{1}{4}$ sections, unless we reduced the length of the frame so as to make the hive about fourteen inches from side to side (outside measurement). To avoid this we could increase the length of the 1-lb. section to five inches, making it $3\frac{5}{8} \times 5$, which with $\frac{3}{4}$ inch wood used for crate would make just $16\frac{1}{4}$ inches. A 2-lb. section for this sized crate would be 7×5, and if a half-pound is required $3\frac{5}{8} \times 2\frac{1}{2}$.

The kind of crate I would prefer would be one *similar to the one* exhibited by Mr. Sambels, being the height of the section only, but without the inside fillets, and having strips of tin at the sides and two angle tins, thus—⊥ in the centre to support the sections.

I send herewith an illustration of a frame to form a bee space for this kind of crate, and at the same time to



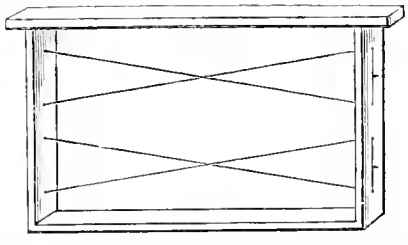
prevent the sections from being propolised, and think the only explanation I need give is that the strips of wood $1 \times \frac{3}{8}$ rest on a rabbet shown in section of frame. They are placed about $\frac{3}{4}$ inch apart and immediately over the interstices of the frames below, and may be fixed or loose. A strip is shown in the section of frame at *a*.

In regard to the divider, shown on page 126, allow me to suggest that the side slots need not be more than one inch long, which would be quite sufficient for the bees to pass, and sections for use with such a divider having slots only one inch long at the sides would give more strength to the lug at the corner, being less liable to break away, and would keep the heat in better. I suppose sections will now be made some with slots on the right side only, some with slots on the left side only, and some on both sides.—A. T. Wilmot, *St. Albans, March* 26.

THE WOIBLET SPUR EMBEDDER.

[896.] It was with great pleasure that I read your description of the 'Woiblet Spur,' as I can quite believe it is exactly what most bee-keepers require. There are, however, one or two matters connected with its use to which I should like to draw your attention and that of the readers of the *B. B. J.*

1st. The method of wiring frames as described by you, viz., carrying the wire from the top to bottom bar would, as a rule, be a failure, owing to the bottom bar in most of the frames sold by dealers being too weak to keep the wire tightly stretched, for as soon as the board (Fig. 6 in your description) was removed the bottom bar would be bent towards the top and the wire would thus become slack. Under these circumstances I always lace my frames from side to side bars, as in sketch, placing the sheet of foundation between the



wires and fixing it to top bar, and then twisting the ends of wires together until they are quite tight, so that there are two wires on either side of foundation.

I have up to the present (for want of such an apparatus as the Woiblet Spur) pressed the wire into the

wax with the point of a small bradawl, first warming the sheet of foundation; and although the wire has not been covered with wax, I have always had the cells drawn out and used as readily as those which the wire (Wilson's of Oakham) did not cross, as I shall be happy to prove by sending a frame of comb for your inspection. In fact, unless the comb is closely examined and held before a bright light no one could tell that it had been wired. I used frames of foundation wired in this manner last year for extracting without a single comb giving way.

The description you mention as given by Mr. Cheshire is certainly surprising as coming from a practical bee-keeper; but a drawing in one of the dealer's catalogues is still more absurd, for if the apparatus is anything like the drawing, the wire would be pressed into the foundation by teeth about an inch apart and nearly half an inch across, and of such a large size that I should expect they would punch a hole in the wax on either side of the wire.—Harold Adcock, *Middleton, Northampton.*

CROAKING QUEENS.

[897.] On page 110 I am slightly misquoted by a slip of Mr. Anderson's pen. The expression I used in my paper was, 'We recognise the contented boom of the quiet prosperous hive, in opposition to the sharp "poop! poop!" of *the lost queenless bee.*' Your correspondent makes me say *the lost queenless hive.* The notes I allude to are well represented by the upper G of the tenor singer, and are produced by keeping bees prisoners under a glass after destroying or changing their characteristic aroma by feeding on peppermint syrup; the noises are are made both under the glass, and whilst trying to escape by flying against the window-pane.

Some time ago when this subject was before us in your columns I told you on my part I had distinctly traced the croaking in a hive to the striking of wings against the hard shining surface under an American-cloth quilt. It was a drone; 'I see'd him do it.' We can imitate him (or the other bees) with a pen or pencil held in one hand, one end near a window pane, a sheet of paper, or wood, and by playing the 'devil's tattoo' with the fingers of the other hand on the pencil, so that its end strikes the object, we may account for many noises heard in hives produced by blows or vibrations of wings, which are often mistaken for voice tones. I am quite with Mr. Anderson as to the importance of studying *minute* details in any branch of science, and we have only to refer to the works of the 'early fathers' in bee-keeping to find justification in discussing apparent trivialities, indeed we need none.—R. A. H. Grimshaw, *Horsforth, near Leeds.*

NOTES BY WOODLEIGH.

[898.] Excluder Zinc.—Could we not dispense with the cross pieces left in a sheet of excluder zinc as now made and have the width only, and let the slots run from side to side? I should think stout wires stretched in an iron frame the proper distances apart would not be such an impediment to worker bees to get through as the flat zinc, the iron frame could easily be made the size of a 21 lb. section crate. If, as I suggest, with *zinc*, the sheets would require to be thicker, or it would bulge and not answer the purpose intended.

Instinct.—Do Bees Talk?—Last summer I had a fine bell-glass filled, as I thought, from external appearance, with splendid honey, but when I came to take it off the hive I found the centre of it full of brood in all stages of development. I had taken the precaution to use excluder zinc, and so of course did not expect anything of the kind, although I could not account for a few drone bees walking leisurely about in the super a few days before I removed it from the hive, but thought perhaps the excluder had dropped off the rabbet on one side and so given them access to the dome; but when I got it into a back room, where I always manipulate my large supers, I found the zinc in place just as I had put it before it was put on the hive, though a glance told me the super was spoiled by brood, among which was a number of drones. The queen must have got through the excluder zinc shortly after the super was put on, and when through had not been able to get back into the body of the hive, and here confined in a bell-glass she had done her best to carry on the well-being of the colony though on a limited scale. But why all this description, you say, about a broody super, that is a common occurrence? Yes, sir, it may be a common occurrence, but the following remarkable incident I noticed helps to prove that bees must have a language, or some means of communication that is not known to us at present. Here in this bell-glass were drone bees that had been bred in it, drones that had never seen the light of day, had never used their wings, could not, by actual sight, know the shape of the outside of the hive or the position in which it was situated or in what it differed from others in the same row or apiary, unless it was communicated to them by worker-bees who were able to pass the excluder, or by other drones that were bred in the hive below from eggs deposited by the queen before she got up into the super. Yet when I removed the board with zinc centre from the bottom of the super the drones took flight through the partly open door and instead of flying to one of the fifty busy hives immediately in view of the door they very quietly careered round to the side of the house to their own hive, although the row of hives—of which theirs was number one of the row—was not in view from the door through which they made their exit. Now how shall we account for the above unless bees do communicate their ideas to each other, or that they had in this instance given the drones instructions by some means as to the latitude of their domicile while still prisoners in the super? The only other alternative we have in the case is, that the drones were piloted to their right hive by worker bees who had left the super before them and were still flying about round the partly open door, or else it must have been the sounds of distress that were uttered by the bees of the hive on the loss of their food, brood, and queen, as I think I have made it plain that when I removed the super I had all the brood and queen with it. I know the hive was in great commotion at the time, and the hive, though not visible from the door, is only a few yards from it; and if bees have a language and are able to lament when a great disaster occurs to the colony, then probably the sounds of the sisters' voices in great distress attracted the sympathies of their big burly brothers the drones, and acted as a beacon light does to the lost mariner.—Woodleigh.

SIZE OF FRAMES.—ARTIFICIAL POLLEN.

[899.] I observe that the size of bar-frames is sometimes discussed in the *Journal*, my experience has been that hives containing ten of Abbott's large tapering frames give at least 20 lbs. more honey per hive than hives containing ten Association frames. These large hives winter well with all the frames in; mine appear now almost as full of bees as they are at swarming time, judging by the numbers that come out on fine days. I have not opened out a hive yet; they are covered first with enamel cloth, then thick felt, then an inch thick board, with a feed-hole through all these layers, and finally plenty of flannel felt, and chaff-cushions on the board, which feels quite warm under the cushions. Fearing some of them might be short of food I took off the perforated zinc which covered the feed-hole, intended for syrup feeding, and am now giving them tumblers of raw West India sugar turned over

the feed-hole. I can see when to renew it, and some hives are very hungry. After the bees had finished all the pollen in the crocuses, I spread honey very thinly on small pieces of board and dredged a good layer of pea-flour over it, and placed these some distance from the hives; they soon cleared the boards, and doing this rather late in the day I saw no robbing set up.

Do you approve of it? The floor-boards seem quite dry as far as I can see without much disturbance.—BEESWING.

[We think the device is one to be commended for its simplicity and efficiency.—ED.]

HONEY MARKET.—OBSERVATORY HIVE.

[900.] Several of your correspondents, in writing to the *Journal*, complain of having no market for their honey, and if they have they require to sell it at a very low price. Then others say they have a good market and get a good price, by doing all they can to make a market among their friends and others.

Now, I think a good plan for creating a honey market would be for bee-keepers to exhibit their honey, bees, &c., at the horticultural shows generally held in their own village every year. I believe that if the committee of such shows were approached in a proper manner they would be very happy to assist bee-keepers by giving them accommodation at their shows, and if this were done the bee-keepers in their own village could often very have a very nice display of honey, &c., and they also could explain to the people going the round of shows various matters in connexion with bees and bee-keeping, and in this way it would also prove a greater attraction to the flower shows. I would like if some of your numerous correspondents would give us their opinion about this, being better able to write and advise than I am in connexion with this matter.

Another request I would ask of some of the readers of the *Journal*—if any of them would be kind enough to give a description of how to make a simple observatory hive to hold either two or four standard frames, suitable for the exhibition of bees at a flower show, as I would like to try and make one, so as to have it ready for the horticultural show in our village, at the end of the season, as I intend to get up an exhibition of bees, honey, and appliances, along with other two or three bee-keepers this year.—THORNTON HAMILTON.

LOSS OF LIGURIANS FROM MISMANAGEMENT.

[901.] It was in July, 1886, the exact date was the 5th, on opening one of my hives—to which I had lately introduced a laying queen, which I expected to find, by that time, presiding over a goodly quantity of brood,—to my dismay, I could discover neither brood, nor eggs, neither after searching over all the combs could I catch a glimpse of the queen.

Now, having, for some time, wished to possess a Ligurian hive of bees, I determined to procure a queen of that race, and so immediately posted down to a reliable dealer, for that purpose. I obtained a fine healthy, lively one, which had, I was informed, only arrived from Italy three days previously. When I arrived home it was too late to introduce her, so I postponed the operation until the next day.

On the following morning on opening the hive, to which I had intended to introduce her, I discovered, by the unexpected presence of eggs in the combs, that their queen was unmistakably present; so not wishing to destroy her in order to introduce the Ligurian queen, I procured a couple of pounds of bees without a queen, introduced my Italian to them, and hived them on four frames of foundation.

I stimulated them with syrup, until, with the addition of two frames of hatching brood, I had eight combs pretty well covered with bees, and almost one mass of brood by the middle of September, when I commenced the autumnal feeding in conjunction with my other hives.

At the end of September I examined all hives before packing for the winter; my English and cross-breds had sealed the syrup up well, and were in splendid condition; but on opening the Italian hive, I found that, instead of storing the syrup, they had converted the combs into a mass of brood, with but little sealed stores; so I had to continue feeding them now with thicker syrup and more rapidly.

On examining them on 15th October, I found they had only about 20 lbs. of stores in the six combs to which I had contracted them, and that each comb had about 1 lb. of unsealed food; I added a frame of capped stores weighing 5 lbs. taken from another hive, and I intended to extract the unsealed honey; but being away from home except at the end of each week, I had no favourable opportunity of doing so, so wintered them as they were. If I had known what I do now, I should have carried the hive indoors, extracted the uncapped honey, added candy to make up the deficiency in their stores, and then returned them to their stands in the open.

All went well, or apparently so, until the last day of the year, when I discovered on my daily inspection of the hives, about fifty dead bees on the alighting board in front of the entrance to the Italian hive, and I saw at once that dysentery was the cause. The next day, another batch of fifty was removed from the entrance, and the hive was carried indoors. An empty hive was prepared ready to transfer the combs and bees into, with chaff-cushions contracting the hive so as to contain only four frames. The next morning the room containing the hive, which only registered 32°, was heated by a stove to 60°; the combs were removed, the unsealed honey extracted, and the bees which still remained alive, about 10,000, were shaken into the clean hive. Candy was placed over the frames, and a chaff-cushion on top. There were about 5000 dead bees on the floor-board of the old hive.

The hive containing the surviving bees was then removed to a dry, underground cellar, registering 38°, where they remained until 5th February, the temperature varying from 36° to 47°; the dead bees raked from the bottom of the hive also varied with the weather from 4 to 12 per diem, more dying when the temperature was high; this was no doubt caused by the bees being enticed out by the warmth, and not being able to find their way back in the dark.

On 5th February the thermometer registered, in the open, 40° at 9 a.m., and 50° at 3 p.m.; the warmth also in the cellar making the bees uneasy, and, consequently, the mortality great, I removed the hive to its old stand in the open, and the bees had a cleansing flight. I noticed that, while the warm weather lasted, the death-rate, now they were in the open, had decreased from ten to five per diem.

The weather soon, however, changed cold again, and perhaps my wisest plan would have been to have again removed the hive to the cellar, still I hoped that, having pulled through so far, they would continue to do so until the weather permitted my uniting them to another hive. However, the heavy fall of snow in the night of 14th March, and the accompanying frosty nights, and sharp east winds, proved too much for them; and they succumbed, on 17th March, 1887, the victims of mismanagement on the part of their owner.

Moral: Do not stimulate too late in the season. *Always* extract *all* unsealed stores before wintering.

Perhaps from my trial of them, I may not be accurate in my impression, that Italians do not cap over their honey so well as other races, and that the capping is

very thin and unsuitable for sections. I can, however, affirm that no quieter bees to the manipulator could exist, although they were most vigilant in defending their hive from robbers, when they were strong and in health.

It has been complained in the *Journal* that we only hear of successes, and not of disappointments, and for that reason I have penned the foregoing; however, a person must be indeed courageous to sign his name to a confession of this description. I therefore, ever hoping, sign myself—NIL DESPERANDUM.

Review.

THE BEE-KEEPER'S HANDY BOOK. TWENTY-TWO YEARS' EXPERIENCE IN QUEEN-REARING. By Henry Alley, Wenham, Massachusetts.—Practical bee-keepers well know the importance of queen-rearing as a branch of apiculture, and here we have a work treating especially of this subject. Mr. Alley, who is the present editor of the *American Apiculturist*, has had twenty-seven years' experience in bee-keeping, twenty-four of which have been devoted to queen-rearing; and as he is acknowledged by American bee-keepers to have produced and reared more queens than any other breeder, he may be regarded as one speaking with authority. In former editions the largest part of the book was devoted entirely to queen-raising, but as the author found many who purchased it were not experts in bee-keeping and desired more information suited to beginners, he has, in response to a request, enlarged his work and given, at the commencement, practical instructions in bee-management. The first part consists of 175 pages, and contains everything it is necessary to know to become a good bee-keeper. Mr. Alley is one of those who gives 'honour to whom honour is due,' and in the descriptions of hives and appliances, great care is taken not only to describe them correctly, but also to give the names of inventors as well as the names of the various bee-keepers whose opinions he quotes. Amongst the hives described are the Langstroth, Quinby, Baystate, Van Deusen-Nellis, Shuck's Universal and Invertible, the Heddon-Langstroth, and many others, of which also illustrations are given. A chapter is devoted to invertible frames, in which he says, 'The idea of reversing the hives for tiering up and other purposes, is not by any means new or original with the present generation, having been practised and strongly advocated by a successful Russian apiarist in the eighteenth century, and claimed by him to be one of the most valuable features of his hive.' Who will say after this that there is anything new under the sun? There is also a useful chapter on comb-foundation making, and tests for bees-wax are given, which will be appreciated by manufacturers. Feeders and appliances of all sorts are described, and valuable hints will be found on wintering. The last chapter of about a dozen pages is on bee-pasturage. The second part is devoted entirely to queen-rearing, and Mr. Alley adopts the motto, 'Better, not cheaper queens,' with which we entirely agree. This subject occupies about ninety pages, and is treated by the author in a most practical manner, showing his complete mastery of it. The system has already been briefly described by Mr. Blow in his article 'Amongst the Queen-raisers of North Italy,' on page 96 of *British Bee Journal* for 1886, and some of the illustrations there were from Mr. Alley's book, although by some oversight their source was not acknowledged. We shall on some future occasion hope to give extracts, and describe more fully the methods he so warmly advocates. This book should be in every bee-keeper's hands, and will prove a valuable addition to our bee literature being honestly written by a practical bee-keeper, who gives his readers the benefit of his experience. This work is a handsome octavo volume of 269 pages, beautifully printed and copiously illustrated.

Echoes from the Hives.

South Derbyshire, March 29th.—Have not had the heart to send an 'Echo' ere this, as I could scarcely conceive a more unfavourable spring for bees. A month of sharp frost followed by three weeks of cold, rough winds disposes of most of February and March. To-day, however, the wind has dropped and the sun shines warmly, so that there is a general exodus of bees. I have taken the opportunity to glance through my hives and put them straight for work. For the time of year I never before saw so little brood, my hand would easily cover the patches, though there appears to be about the average amount of bees. Out of twenty hives, I have lost one through starvation (and robbing, too, I fancy), and one is queenless. I purpose trying the 'let-alone' system this season, allowing no brood spreading, simply to add combs outside the nest and to feed when necessary.—M. J. ASTLE.

North Leicestershire.—April 1st and not a leaf to be seen; crocuses just well up; snowdrops and aconites gone. The snowdrops bloomed and faded almost unvisited by the bees, who have only had four really good days foraging, viz., February 22nd and 27th and March 26th and 29th. Stocks continue strong, but require feeding to prevent the destruction of brood.—E. B.

Woore, April 4th.—On April 2nd I examined three frame-hives, found new-laid eggs and hatching brood; colonies very healthy, but getting rather short of food; have commenced to feed to-day.—J. S. L.

NOTICES TO CORRESPONDENTS & INQUIRERS

M. E. KIRK.—*Fighting.*—The excitement, which you describe by saying, 'The hive was almost covered with bees,' probably arose from the bees rejoicing and 'playing' in the glorious sunshine. You did wrong in removing the quilts and enlarging the entrance, thus giving free entrance, above and below, to the bees from your other hives, against which it was impossible for the attacked colony to defend itself. At this time of year the heat is *never* so great as to be injurious to the bees, and being unable to obtain honey from the fields they were only too happy to obtain such an opportunity of robbing a neighbour as you presented to them. It is possible, but not likely, that the first excitement might have been caused by a small colony having deserted its hive, and settled on the outside of yours, with a desire to gain admittance, but the former explanation is far more probable. We do not think much damage is done except the loss of a few bees. The bees would encase their own queen to preserve her from the stings of the intruders. It will be well, however, to obtain an interview with her majesty on some fine evening when bees have ceased to fly, and also to notice whether the colony works vigorously, and carries in pollen, when the weather permits. Contract the entrances of all your hives to about two inches in width, so that if a spirit of robbing has been engendered each colony may be able to defend itself.

W. H. JENKINS.—1. *Section distance.*—Section-racks are made to receive either three or four rows of sections of seven in each row, and to cover the top of a hive containing ten standard-frames. If three rows (twenty-one sections) are used, spaces sufficiently wide between the rows (say, 1 in. full) are allowed for convenience in removing and inserting sections while the rack is in use. If four rows are preferred (twenty-eight sections), with the view of a better retention of heat, the rows must touch each other, or nearly so, and the rack will project slightly over the sides of the hive. These dimensions refer to 1-lb. sections = 4¼″ × 4¼″ × 2″. 2. *Slot width.*—The width of 'slots,' or passage-ways, cut out of dividers for single sections, should be one bee-space, *i.e.*, a quarter of an inch full, and these should correspond with the side passages of the sections, supposing the sides of the sections touch. If the tops and bottoms of the sections project a half bee-space beyond their sides, thus forming a full bee-space between the rows of sections, the openings in the dividers must still be ¼ in., and must stand opposite the spaces between the rows. 3. *Wintergreen.*—Amongst essential

or volatile, oils, oil of wintergreen (*Gaultheria procumbens*) is synonymous with the oils of partridge-berry, methylo-salicylic ether, and salicylate of oxide of methyl. This '*Oleum gaultheriæ*' (Pharmacopœia of United States) is procured from the leaves, or the whole plant of *Gaultheria procumbens*, a herb common in North America, and known also by the names of 'box-berry,' 'chequer-berry,' 'partridge-berry,' 'mountain-tea,' and 'wintergreen.' When diluted it is agreeably fragrant. When mixed with a dilute solution of potassa it solidifies to a crystalline mass (salicylate of methyl and potassa) from which the oil may be again separated by the addition of an acid. Salicylic acid may be obtained from this '*Oleum gaultheriæ*' by acting upon it with a strong and aud hot solution of potassa, and afterwards separating the acid as before. But the greater part, if not the whole, of the salicylic acid of commerce, is now obtained by Professor Kolbe's method, whieh consists in acting on sodium carbolate with carbonic acid. See 'Cooley's *Cyclopædia*.' Oil of wintergreen, pure and simple, we do not advise you to give to bees in syrup. It is much better and safer to keep to the solution of salicylic acid as recommended in Mr. Cowan's *Guide-Book*, p. 151.

O. W.—*Food for the present Season.*—The candy made as you propose will do, but we should substitute pea-flour for ordinary wheat-flour. The best method of feeding for a busy man is the dry sugar plan. Cover a frame both sides with the thin board nsed for picture-books, leaving an inch space open at the top of one side. Fill the trough thus formed with Porto Rico sugar and use as a dummy. Crowd the bees so that they are in contact with the feeder, and place enamel cloth on top of the frames to condense moisture.

Inquirer.—We have not advanced so far in our endeavours to nuravel the mysteries of the physiology of the bee as to be able to determine whether the eggs and grubs in the pieces of comb forwarded are the progeny of a fertile worker or a fertilised queen.

E.—The comb forwarded shows chilled brood much decomposed, and requires vigilant watching.

Insects.—The two insects are drones, and being very small, they have most probably been bred in worker-cells.

R. T. S.—We have no experience of caraway as a bee plant. You will be able to tell whether it is of value to bees at the time it is in flower.

C. H. B.—We do not think that the sample of sugar, stated by your grocer to be Porto Rico, but which we call 'picces,' would be found suitable for dry sugar feeding. We would recommend you to get pure Porto Rico or Barbados for this purpose.

W. G. C.—*Honey.*—The sample of honey labelled 'Edward Pink & Sons' has been submitted to Otto Hehner, Esq., analyst, and his reply is, 'The sample consists of genuine honey.'

J. A. Watson.—We suggest that you should forward a sample of the honey to Mr. Hehner for analysis.

Eucalyptus Honey.—With reference to the short paragraph in *B. B. J.* of 31st March about Eucalyptus Honey, our readers may be interested to know that it can be obtained of the British Bee-keepers' Stores, 23 Corubill, E.C., who, we are informed, have recently received a consignment.

Show Announcements.

June 23, 24.—Suffolk Agricultural Show at Bury St. Edmunds. J. Huckle, Secretary.

July 11-15.—Royal Agricultural Show at Newcastle-on-Tyne. Entries close May 12. J. Huckle, Kings Langley.

July 20-22.—Lincolnshire Agricultural Society at Spalding. Entries close July 4. R. R. Godfrey, *Secretary*.

August 3-5.—Yorkshire Agricultural Society at York. Secretary, H. L. Rickards, Poole, near Leeds.

Business Directory.

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Abbott Bros., Southall, London.
Appleton, H. M., 256A Hotwell Road, Bristol.
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Blow, T. B., Welwyn, Herts.
Burtt, E. J., Stroud Road, Gloucester.
Edey & Son, St. Neots.
Howard, J. H., Holme, Peterborough.
Hutchings, A. F., St. Mary Cray, Kent.
Meadham, M., Huntington, Hereford.
Meadows, W. P., Syston, Leicester.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
Stothard, G., Welwyn, Herts.
The British Bee-keepers' Stores, 23 Cornhill, E.C.
Webster, W. B., Wokiugham.
Wren & Son, 139 High Street, Lowestoft.

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British Bee-keepers' Stores, 23 Cornhill, E.C.
British Honey Co., Limited, 17 King William St., Strand.
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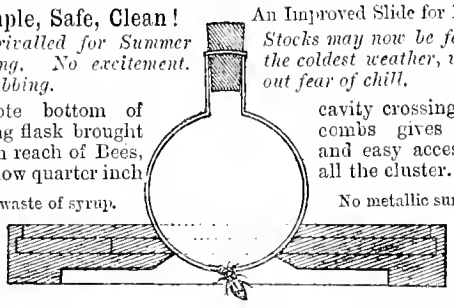

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Editorial, Notices, &c.

THE AGE OF WORKER-BEES.

While there are many points in the physiology of the honey bee waiting to be determined by the painstaking efforts of the curious searchers after knowledge, one of the questions which for many ages puzzled the minds and baffled the researches of philosophers and students has for many years received a satisfactory solution. We refer to the once-vexed question of the longevity of worker-bees.

In a very early number of the *British Bee Journal* (Vol. I., p. 46), in reply to a question respecting the age of the worker-bee, the Editor was able, with a full degree of authoritativeness, to give the following reply:—

'The introduction of a Ligurian queen to a full stock of black bees proves that the life of bees in summer is very short. As it may be presumed that the black queen continued to deposit eggs up to the time of her removal from the hive, it must be evident that black bees will continue to hatch out until the expiration of the next twenty-one days at least. From that period, and not until then, will it be possible for any young Ligurians to emerge, but after that date the blacks will die, and the Ligurians increase so rapidly that in a few weeks the hive will be almost entirely populated with the latter. We think we may safely say, if the exchange of queens is effected during the height of the breeding season, that three months after the birth of the first Ligurian bee not a single black worker will be found in the hive.'

But we believe it would be interesting,—at all events to beginners in bee-keeping,—to trace back and recapitulate the origin and circumstances by which our present knowledge on this question has been attained, and to note the continuous steps which have led from the darkness of ignorance to the light of truth and the assurance of fact.

The views enunciated by ancients and moderns to very recent times on this subject were not determined by ocular demonstration, but were vague guesses and foundationless conjectures. This arose in a great measure from the nature of the hives in which the bees were domiciled, preventing their owners from investigating their interiors.

Ancient writers who have touched upon the longevity of bees have constantly and persistently confused the duration of the existence of communities and that of individual bees.

We are indebted to the philosopher Aristotle, who flourished about 384 B.C., for the knowledge that prevailed in his days of the natural history of animals. In his works, in all probability were incorporated the floating ideas that writers previous to him had accumulated. A portion of his *Natural History of Animals* was devoted to bees; and in touching upon the age to which bees attained, he extends it from six to ten years. Virgil says that bees reach the seventh summer,—

'*Neque enim plus septima ducitur æstas.*'

Columella speaks of the duration of their life as being ten years; but the construction of his language inclines us to think that he refers rather to the existence of the community (*examen*) than to that of individual bees.

The long period assigned by the ancients to the existence of stocks is not far from correct if the hive be not changed or the combs renewed, as the accumulation of the cocoons or silken pellicles with which the cells are successively lined, and the excrement of the larvæ left behind each lining, gradually render them unfit for their use as brood-cells. Dr. Hunter found three of these linings deposited in a single season, and counted upwards of twenty in the cells of an old comb, which, taking the average of three generations yearly would make the age of the community about correspond with that stated by some ancient writers.

There are many instances on record of the lengthened existence of a stock in the same domicile. Mr. Espinasse tells us that he once took a hive which had stood fourteen years, having found it very weak, and yet during the previous summer it had thrown off a swarm. Della Rocca says that he has known hives in Syria continue in a flourishing state from forty to fifty years. Butler mentions that some bees had their location under the leads over the study of Ludovicus Vives in Oxford, and remained there from the year 1520 to 1630; in the latter year it had been found necessary to renew the leads, when the bees being disturbed, 'an incredible mass of honey was taken.' M. Monffet supposes that bees may live thirty years, and says he knew a stock that continued in the ceiling of the Duchess of Somerset's house more than three decades of years, and questions whether they died of age at all.

Dr. Butler, in his *Feminine Monarchie*, with a nearer approximation to the real fact, says, 'The truth is, a bee is but a year's bird, with some advantage.' Thorley, in his *Melissologia*, says, 'Observe with some strictness a hive of bees in July and you may perceive many of them of a dark colour with wings rent and torn, and in September not one of them to be seen; and in my opinion a bee lives no longer than two summers; yet that is a long life if compared with wasps, the drones, silkworms.'

The erroneous supposition which had for so many ages prevailed respecting the bee being a long-lived animal has in these present days been disproved; and this 'curious arcanum in natural history,' as Dr. Evans styles it, has been 'unlocked.'

The change in the form of hives, the advent of Ligurian bees into this country, and the introduction of queens of this race, have for ever settled the duration of the life of the worker bee. Every bee-keeper is now-a-days able to substantiate for himself the truth of the statement we have given from the *Bee Journal*. The short life of the worker-bee during the summer months is due to the hard work it has to perform, and during the honey glut 'the three months' is even reduced from six to eight weeks; but if bees are hatched in the autumn they will live during the winter and commence the work of the hive in the spring,—so extending their life from eight to nine months.

If any of our readers are disposed to study this question further we would desire to direct them to an exhaustive and painstaking paper in the sixth volume of the *Transactions of the Entomological Society*, p. 226, written by one who nobly served the cause of apiculture in his time and generation,—the late Mr. J. G. Desborough, of Stamford.

USEFUL HINTS.

Weather.—Weather still cold and ungenial. Wednesday, March 29th, and Sunday, April 3rd, were the only days, since writing our last Hints, on which the bees were able thoroughly to enjoy themselves. Those were days of brilliant sunshine and high temperature, and colonies displayed themselves in full strength, carrying home large quantities of pollen from various sources, but chiefly from the willow. Storms, wind, snow, hail, and rain, have been frequent, and although fruit trees give promise of profuse bloom, at present we have none open except on peaches and nectarines, and our spring is a late one.

Food and Bacillus.—Now we are feeding on syrup, salicylised or phenolised, for we hear that *Bacillus alvei* has appeared in our neighbourhood, and that *Bacillus depilis* is very prevalent. Does not the latter lead up to the former, or rather is not this 'bee-dropsy,' as it used to be called, incipient foul brood?

Probably the skilled in this matter will tell us that the *bacilli* are not the same. Wherever the one has prevailed, in our experience, the other has not been far distant. We strongly advise *all*, as a precautionary measure, to use one or other of the above-mentioned remedies. If careful to use the *exact* quantities prescribed (see Cowan's *Guide-Book*, pp. 151-3), our bees consume the food as eagerly as they do plain syrup, and there can be no question of either acting as an antidote.

Breeding and Stimulation.—A sufficient supply of food is now a matter of the utmost importance, the consumption in all flourishing colonies being greater than ever. Often during this month have we known large colonies brought to the verge of starvation, and not unfrequently to perish, from lack of food, while the owner has flattered himself that 'a week ago they had enough for a month's consumption.' Surely it is better rather to overdo than to underdo in an unpropitious season like the present. Bees, like young plants, and all young animals, should 'be kept going on.' Any check to growth, or semi-starvation, is certain to result in loss to the owner.

It is well to keep the nest, at present, between division-boards, giving a frame of comb, containing a little sealed honey, at the sides, as more room is required, and to keep all colonies as warm as possible, in regard to quilts and covering, feeding at the top from a good heat-conserving feeder.

From colonies wintered on more combs than required—their outside frames being clogged with granulated, or partly granulated, honey—it will be of great advantage to withdraw such outside combs, to pass them through the extractor, and to return them to the hives for the bees to clear out. We have found no kind of spring stimulation equal to this; and the method is perfectly safe, since it affords neither encouragement to robbing nor inducement to the bees to fly abroad in unseasonable weather. The honey thus obtained is of second-rate quality, but when rendered fluid by heat is useful in a variety of ways for home consumption.

Stimulation, in other cases, should be carried on as before, by breaking the capping of cells near the nest.

Swarms—Natural and Artificial.—Probably the advocates of artificial swarming outnumber those who prefer the natural system. The objections to the latter are said to be uncertainty, inconvenience, waste of time, undesirable increase, loss of swarms, multiplication of small and useless second swarms, settling in inconvenient places, refusal to swarm at all, and remaining idle at home, &c. Bearing all this in mind, we have never seen artificial swarms work with half the energy of natural ones, and the queens reared under the natural impulse are almost invariably the longest-lived and the most prolific. The management of an apiary must, of course, be conducted according to the intentions of its owner, whether, for instance, it is worked for the production of comb or extracted honey, for increase with a view to the sale of bees or for queen-raising, or even for a combination of all these points.

But whenever it can be arranged to indulge, without actual loss, the natural instinct or propensity to swarm, we strongly advocate doing so. Much depends on weather. In some seasons there is very little disposition to swarm. In others, it is next to impossible to prevent the issuing of swarms from half-finished supers, notwithstanding that plenty of room has been given in all directions. In 'U. H.' of April 15th last (*B.B.J.* vol. xiv. p. 162), we gave, under the head of 'Preventing After-swarms,' a modified plan of the Heddon system, which we have practised successfully, and which gratifies the natural instinct for swarming, either with or without increase, and while working for comb or extracted honey.

With slight alteration, or adaptation to circumstances, we think the plan would prove successful in all cases. For example: when a swarm has been installed in the position of its parent, with the rack of sections over it, brood-combs, minus queen-cells, at an interval of a day or two may be transferred from the latter to the former, more room being afforded, and an additional rack added, so that a constant addition of young bees is made to the swarm at the expense of the parent colony, which, no increase being desired, is not allowed to rear a queen, or to do so in nucleus only. Under the swarm-preventing plan, when a swarm is put back, and the queen-cells are cut out, the bees work with little or no energy, and

more often than not, sulk, and refuse to work at all; and swarming is prevented at the loss of honey. When 'putting back' is practised, it is always best to give room below the nest, by nadiring with a small sectional hive, about 6 in. deep, containing frames of 4 in. depth, placed at 1½ in. from centre to centre, and having full sheets of worker-celled foundation; and drone larvæ should be destroyed when excising queen-cells. At the same time more super room may be given if honey is coming in fast.

Mr. Demaree states that, if he wishes to prevent further increase, he places his swarms on half the usual number of Langstroth frames (equal to about seven English standard frames), using only 'starters' in them, and fills up the space at the sides of the frames with division-boards standing a half inch apart. Over all he places queen-excluder zinc, and upon it sets the first tier of surplus cases.

By this management the whole force of the new swarm is spent in producing surplus, and comes out as a mere nucleus, being disposed of, as such, at the close of the season, either by uniting or allowing it to perish. The parent colony is allowed to raise its queen, and is retained in stock. If increase is desired he hives the swarms on full sets of frames (equal to twelve English standards) filled with worker foundation, and gives the colonies abundance of room as fast as they require it, practising the tiering system to supply their needs.

If the queens are old there will be danger of swarms issuing, but, as a rule, no swarms will issue from new colonies if the queens are satisfactory to the workers. This influence, or queen condition, gives the key to the situation. In practising this plan the swarm should occupy the position of the parent colony, the latter being removed to a new stand. If the queen which leads off the swarm is more than two years old, the introduction of a fertile young queen would go far to prevent all probability of swarming.

To practise either of these systems to the greatest advantage, fertilised young queens should be introduced to the parent colonies immediately after swarming, and shortly afterwards surplus cases given. By these plans, whether increase is desired or not, the natural instinct of the bees is gratified and the swarming energy is utilised, a far more satisfactory practice, to our ideas, than the usual artificial system of 'making two out of three,' &c., recommended in our English apiaries.

Lose no time in completing all possible preparations for the coming season.

ECHINOPS SPILÆROCEPHALUS.

This plant which is just now all the rage amongst American bee-keepers, and has been by them called the Chapman honey plant, owing to it having been introduced by Mr. Chapman for this purpose, is a native of southern Europe and Western Asia. The name is derived from *echinos*, hedgehog, and *ops*, appearance, referring to the globular and spiny character of the flower. The English name is Great Globe-thistle. It belongs to the order *Compositæ*, composite flowers. The plant is bushy, with stems from four to six feet, and alternate leaves, green and slightly hairy above, whitish and downy beneath. They are large, pinnatifid (*i.e.* divided half-way to the midrib in segments in a feathery manner), sinuate (with a curved margin), with unequal segments, and slightly spinose (hard-pointed lobes). The stems are erect, branched, and streaked with longitudinal lines. The flowers are globular, of a very pale blue, and the plant continues in bloom from July to September. The lowest florets expand first, and the others continue to do so in succession, so that each flower is a considerable time before it is fully blown. It is commonly grown as an ornamental garden plant, and at a distance resembles a gigantic and handsome thistle. It grows without care, and almost any waste place will do, although it thrives better in a light calcareous soil. It is visited by the honey-bee as well as by humble bees and wasps. We have grown it as an ornamental plant for some years, and it is easily cultivated in shrubberies, and, where hoeing is frequent, as in well-ordered gardens, can be easily kept within bounds. Whatever it may be as a honey plant in other places, we cannot call it a first-class one in our district, and so far, we have only placed it in the second rank amongst bee flowers. We do not recommend its extensive cultivation, for it is useless as a fodder plant, and we doubt if it will answer to grow for honey alone. The seed can be sown from April to June in a bed, and then pricked out in October, from two feet to two feet six inches apart. When the plants are fully established they can be propagated by division of the roots in the spring. It is a perennial and is sometimes called Echinanthus.

Another perennial plant, much handsomer, belonging to the same family, is *Echinops ritro* (Small Globe-thistle), which grows only from two to three feet high, and has smaller heads of flowers of a deep azure blue, with a metallic lustre.

ASSOCIATIONS.

BRITISH BEE-KEEPERS' ASSOCIATION.

The next quarterly conversazione will be held at 105 Jermyn Street, on Wednesday next, the 20th inst., at six p.m. Members desirous of introducing subjects for discussion, or submitting new and useful appliances for consideration, should lose no time in communicating with the Secretary. Arrangements have now been made by the Committee to give awards of merit to useful inventions which may be submitted from time to time for consideration.

The annual first-class examination will be held on Wednesday the 20th inst. Due notice of time and place of meeting will be given to each candidate.

The usual quarterly meeting of County Representatives will be held at 105 Jermyn Street, at five p.m. on the same day, when the subject of the rules for the management of County Shows, in accordance with the resolution passed at the annual general meeting of the members, will be considered.

IRISH BEE-KEEPERS' ASSOCIATION.

A meeting of the committee was held on the 5th inst. Present: Dr. J. P. Allen, in the chair; Rev. P. Kavanagh, Messrs. Milner, Edmondson, and Reid, Dr.

Kuight, and the hon. secretary (Mr. Chenevix). The hon. secretary reported that the guarantee fund reached at present the amount of 14*l*. A further amount of 10*s*. was contributed by a member of the committee. The schedule of prizes for the Association's forthcoming show was settled, but the place and date of the show were referred to a sub-committee. Another sub-committee was appointed to prepare plans for model hives, and draw up a scheme for enabling members to obtain them on specially advantageous terms.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Upper St. Martin's Lane, London, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. Huckle, *King's Langley, Herts (see 2nd page of Advertisements).*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

THE NEW RACES AND THE BEST MEANS OF INTER-BREEDING AND SECURING FERTILISATION.

Carniolans.

[902.] As a pure race these are the nearest possible approach to an 'all-purposes' bee. They can certainly be improved by crossing, but in their purity a remarkable race is presented, possessing nearly all the good qualities of every other race combined, with almost none of their defects. They have been considered by some to be the common black bees, but only a very careless observer would call them one and the same. The white pubescent bands on the abdomen of the Carniolan are broad and very clearly defined, while near the junction with the thorax there is a faint copper colour on the upper part of the first segment.

Some of the queens are very similar to those of the black races, but they are more generally tinged on the abdomen with yellow, while others are quite yellow. All, however, produce workers of the typical kind. The queens are exceedingly prolific, giving this race great advantage over the blacks, though in some respects they have points of value in common with that kind. For instance, they produce very white comb honey, and use but little propolis.

Carniolans winter perfectly, with little or no care on the part of the bee-keeper, being very restful during the longest spells of cold weather. They have, therefore, great vitality, and I will tell also why they keep up their numbers at all times, and what makes them appear even more prolific than they really are: it is their longevity. My own experience has shown that in both summer and winter these bees live longer than any others. This quality alone is a grand recommendation, and to see stocks come out in spring stronger than they were when settled down for wiuter is with them the rule, and but seldom the exception. That they are little inclined to sting is another of their good qualities, and one which probably more than anything will bring them into favour, more especially with beginners.

It has been said that their one fault is excessive swarming, but this has not been my own experience, and I do not see why, under proper management, any trouble should be found in that direction, especially if young queens are kept.

Hints have been thrown out to the effect that they gather no more, if as much, as blacks or Ligurians, but, as a matter of fact, I have known them in nearly every instance do far better than either of the above side by side in the same apiary.

Statements have been made to the effect that the new races are being praised to the exclusion of the natives. In the foregoing papers I have given an impartial opinion, showing the good qualities possessed by each variety which are certainly worth perpetuating. My experience has not been with two or three queens, or colonies of each, but with many stocks, which have been subjected to careful observation. One correspondent thought we had heard the last of these bees long ago, but I would remind him that Cyprians, Syrians, and especially Carniolans, are all gaining ground; they have come to stay, but it would be unreasonable to expect to hear the last of them before the *beginning* was told.

As to our English bees being neglected, I have always been a strong advocate of their best qualities, and I may presently have some things to tell of them that the same correspondent had not even dreamed about nor imagined. We do not certainly call a brown horse black, but why does he call a black bee brown? I consider my own eyesight to be as good as any, but I have yet to see the *brown* bee spoken of by himself as the British bee.—S. Simmins.

MR. LEE'S FRAMES AND SECTIONS.

[903.] I am sorry that my frames and sections, as illustrated in the *British Bee Journal*, p. 125, do not come up to Mr. Howard's anticipations as expressed on p. 150.

Mr. Howard—who has wares of his own to advertise—at the same time would naturally feel a little jealous of the praise my inventions have received from practical men of such standing as Mr. Raynor, Mr. Cowan, Mr. Broughton-Carr, Mr. Cheshire, and Mr. Raitt, whose opinions are not influenced by having axes of their own to grind; and I do not think your readers will be ready to take his interested opinion, in preference to that of the above well-known gentlemen—who have given a very favourable criticism in the *B. B. J.*, *The Record*, and in *Bees and Bee-keeping*—after having seen them and put them together, which Mr. H. has not.

Mr. Howard asks, 'Is it wise to exclude drone-rearing in drone-cells?' If Mr. Howard *wishes to encourage drone-breeding in the hive, full sheets of drone foundation can be fixed in my frames as easily as full sheets of worker.* Neither is it original, but ancient history, for the bee-master to cut out in suitable positions, either foundation or perfectly built comb whenever desirable for the encouragement of drone-breeding.

In my simplicity I have always been under the impression that one of the things most desired by the bee-master was to have all his frames completely filled with comb, and securely fixed on all sides. The strong point mentioned in favour of inversion was, that the combs were thereby built to completely fill the frames, so that they were, among other advantages, not liable to be damaged when the honey was extracted.

I claim that by using my frames and fixiug full sheets of foundation in the frames as they are put together, there is no need for 'a slight addition of molten wax' to hold the foundation secure. Taking the frames in the flat, three of my frames can be completed—comb-foundation and all—ready for putting into the hive in the same time as one ordinary frame where it is 'molten wax' holds foundation.

At the present price of honey, and a possible chance of its being lower (let us hope not), we shall have to simplify and cheapen all our appliances, and economise labour in every way that we are able. And I hardly think using frames '*the first season without a bottom rail, and after the bottom edge of worked-down comb has*

been cut away to receive the same, put the rail in place,' as mentioned by Mr. Howard, as necessary, 'to have a comb-filled frame,' will conduce to that economy of time, and commend itself to bee-keepers generally.

With regard to what is said about my sections being six-piece sections, and not being in advance of the four-piece, or the V-cut one-piece sections; I hope you will not think I am taking up too much of your valuable space, but I feel called on to make a few remarks. In the first place, the four-piece sections were difficult to keep square, and frequently when filled and were being taken out of the crate they would come apart and spoil the honey-comb. The one-piece sections frequently break in putting together, and the time required for fixing foundation, are both drawbacks to them.

Although my sections have six pieces, I can prove by ocular demonstration that they can be put together, and foundation securely fixed, without the aid of molten wax, either as starters—within $\frac{3}{8}$ inch of, and with a narrow strip at bottom (after Mr. Corneil's excellent method)—or with full sheets securely fixed on two sides, in less than half the time the one on the four-piece sections. They are much stronger when put together, and are not liable to break as is the case with the others. When placed side by side a bee space is left between the sections from end to end of crate, so that the clustering is most thorough and complete.

I am quite content that my frames, sections, &c., should be judged on their own merits by impartial judges, and do not feel disposed to run down the manufacture of others for the sake of the more prominently bringing mine before the public. Time proves most things.—James Lee, *43 Glycena Road, Lavender Hill, London, S.W.*

R. R. GODFREY'S HINTS TO JUDGES.

[904.] Following my last on points to be considered in the judging of honey, &c., I pen a few plain and simple hints for consideration by judges new at work, and which may not perhaps be passed altogether unheeded over by those more experienced. I hope I may not be thought intrusive or irksome to your readers and that some profit may result from my remarks. You will have my best thanks for placing them before my brother judges through the medium of your *Journal*.—R. R. G.

Gentlemen accepting an engagement to act as judges at any of our exhibitions should at the earliest opportunity procure a copy of schedule of prizes, conditions, and regulations, and make themselves thoroughly conversant with them. If in doubt of the meaning of any particular clause communicate with the secretary on the day and hour fixed for the exhibition, repair to the scene of action and report themselves. Should it be that all is not ready to commence judging (and it does more generally so happen) take a stroll and view the surroundings. Don't stand by to witness unpacking and staging. Avoid giving the slightest cause for suspicion of having a knowledge of ownership of a single exhibit. Should, however, all be in readiness, procure judge's book, and ascertain from the secretary *if all exhibits in competition which are staged are in conformity with the rules and regulations of the Association.* If any irregularities be pointed out (*as is not unfrequently the case at our exhibitions*) and are left open, ask the committee to consider them, and if desired to do so assist them in arriving at a right decision. Get well acquainted with the order and position of the various exhibits. This may be better and more speedily done with the assistance of the secretary or staging committee. All being so far understood, and the building cleared of all persons except the officials engaged, commence the duties and get done as quickly as after due examination of the respective exhibits will admit of. After the award-cards are placed walk round and compare notes, the duties being thus completed. If time admits use the opportunity to assist the committee in entertaining visitors, interview any critic or be interviewed, and subdue if possible discontent whenever noticeable.—R. R. Godfrey, *Grantham, April 6.*

FOUNDATION.

[905.] My letter (871) in this *Journal*, wherein I gave a test for detecting impure foundation, was written simply for the benefit of bee-keepers, and not for the purpose of instruction in making a chemical analysis of wax. I maintain that by using heat as the test we arrive at a sounder knowledge as to whether our foundation will stand the temperature of the hive; such a test is without doubt the best for that purpose. I really, myself, do not mind if another substance other than wax is used, providing it will answer the bees' purpose for comb-building, and stand the heat so as not to break down or stretch; but this substance has yet to be discovered.

I will now give further tests as to wax. First, by the sense of touch. 'Pure wax should not be unctuous to the touch;' this is readily detected after feeling paraffin wax and is a very good off-hand test, although not to be depended upon without considerable experience. 'Pure wax should not yield more than 3 per cent to cold rectified spirit, and nothing to water or to a boiling solution of soda: the two latter fluids after filtration neither being turbid nor yielding a precipitate on the addition of hydrochloric acid. Boiling water, in which it is agitated, is not, when cooled, rendered blue by iodine. Specific gravity 0·950 to 0·970.' Now a lot of the above is just Greek to many bee-keepers, and all, except touch, cost money to perform, while the heat test costs nothing. I presume this is a fair translation of 'less inexpensive.' As even if you purchase your thermometer—a brewer will readily lend you such an one—you have your eighteenpence worth still in hand, as well as your glass-tube for further experiments. I am extremely sorry that I have raised the ire of Mr. J. H. Howard in giving the information contained in this letter (871), my regret being more profound, as this is the first 'growl' that I have experienced after the many communications that I have contributed to these columns: but *nemo mortalium omnibus horis sapit*, perhaps I did wrong in giving it.—W. B. Webster.

BIRDS EATING BEES.

[906.] As this is just the season at which I find birds most apt to eat bees, and as I dare say the usual controversy as to whether they kill working bees or not will soon set in, I write to give my experience this year, as yet, which exactly coincides with that of the last two years, for which time I have closely watched the movements of birds about my hives.

The only birds I have ever detected killing my bees are three kinds of tits, the coal-tit, blue-tit, and great-tit (there are long-tailed tits about, but I never saw them eating a bee, dead or alive), and chaffinches. The tits begin earliest. In January last, when we had a couple of fine days, in which the bees took cleansing flights and cleared out the accumulated dead bees from the hives, I saw four coal, two blue, and one great-tit eating the dead bees as fast as they were brought out. I watched them very closely, and for the first day or two I could not see them make any attempt to catch a live bee; but after a little while, when the dead bees were all gone, I saw two of the coal-tits and one blue catching bees, and immediately shot them. None of the others which had been so much about the hives while the dead bees were plentiful seemed to touch the live ones, though I have little doubt they would have joined the others if they had been let continue at their work. I do not think any birds touched my bees since till last Wednesday, March

30th (perhaps they may have done so on Tuesday, but I did not see them). On that morning, before ten o'clock, I saw a blue-tit killing bees at the hives. My son immediately shot him. The hives are in a small garden, with a range of two-storey offices at the west, a wall ten feet high at north and east, and a low wall at the south. Most of the hives are in a row, about fifteen feet from the north wall, and the rest a little in front of them, and when the bees are flying well from fifteen hives they go in a continuous stream over the top of the east wall, as there is a quantity of hazel in full flower in that direction. The blue-tit had hardly been shot when a pair of chaffinches took their post on the top of the wall, and commenced flying up at, catching, and eating the passing bees as fast as ever they could. They were immediately shot, and before half-past eleven o'clock six others shared the same fate; but though the place all about is literally alive with chaffinches, no others have since molested the bees. I find this to be the case every year: a few individuals take to killing the bees in exactly the same place just at this season in bright, dry weather, when the bees are flying in numbers and while the other insects are rather scarce, but the general run of the chaffinches do not touch them, and when once there are plenty of small insects flying they let the bees alone entirely; but if the first that attack the bees are not at once shot they cause a much larger number to follow their example, and the execution which a single chaffinch in a favourable situation can do is wonderful. Once while my son was running into the house, about twenty-five yards off, for more ammunition, I saw a cock chaffinch kill and eat nine bees. Chaffinches never come down to the hives like the tits.

I have just given my actual experience, such as it is, and for what it is worth. This place literally swarms with all kinds of birds, and chaffinches are, if anything, the most numerous. I really do not think that the number that kill bees is much, if anything, more than one per cent of the entire number about. As I have said, I immediately execute any individual convicted on satisfactory evidence of killing bees, but I never do so on suspicion. I think that if other bee-keepers would closely watch the dealings of birds with their bees, they would come to the same conclusion that I have, that it is absolutely necessary in the interests of their bees to kill *immediately* any individual birds that take to killing bees, but that to try to exterminate the birds about their hives because some individuals of the same species kill bees is useless cruelty.

I may add that I have never seen any bird kill bees in summer when drones are flying, but I dare say that if the birds which kill bees at this season were left alive they would do so, and, most likely, prefer drones; and I am strongly inclined to suspect that those birds that kill drones in summer, when insects are plentiful, have killed workers in spring, when insects are scarce. I do not believe that a swallow ever killed a bee. There are no flycatchers here.—G. J. H., *April 4th.*

THE NEW JAMES-LEE FRAME.

[907.] In answer to a correspondent, James Lee states,—that the sample frames he has made on his new plan are of both pine and lime. As regards strength, the following extract from Mr. Cheshire's *Bees and Bee-keeping*, vol. ii., p. 194, will fully answer:—

'Two practically essential questions at once suggest themselves: Is the foundation firmly held? and is the frame thus pushed together sufficiently solid for work? The result of experiment is far more to the purpose than a statement of opinion. Two sheets were tested. The first remained unmoved until the strain reached 19 lbs.; it then broke, part being left in the cleft: the second, at 15 lb. parted at the side, some portion being withdrawn, and some left in the cleft. The weight was distributed by clamping the sheet. The rigidity of the frame is remarkable, and its accurate make prevents any trace of winding. The dovetail, also, has great holding power. The lighter, invertible standing frames were more easily tested than the standards, and here the dovetails bore an average strain of 52 lb. before the side bar was broken from its place.'

The lighter frame referred to is made of pine, on the same principle as the Standard. The latter is equally as strong, *where the strength is most required, i.e. the top bar,* and the bottom dovetail will be found more than equal to what it has to do. These frames will be brought before the quarterly meeting of the B.B.K.A. on the 20th inst.—J. L.

SLOTTED DIVIDERS. [893.]

[908.] On page 150 of the *B. B. J.* Mr. Sambels says, I have given my 'version of slotted dividers, claiming them as an 'American invention;' and goes on to say, 'I will endeavour to give the facts about them,' as if what I had written were not the facts. I quoted from 'Gleanings' *ipsissima verba*, and gave the woodcut also to show priority of invention. Although Mr. Sambels had not up to that time been so fortunate as to see it in 'Gleanings,' or to see the crate I exhibited at South Kensington on October 6th, the facts remain the same; it is no new version of mine. I do not for a moment wish to contend that the idea of 'slotted dividers' is not original with Mr. Sambels, or that he ever saw or heard of them before: but he is not prior in such invention, this is all I have said.

With regard to the crate itself, the one I exhibited is precisely similar to it, and has equally all the faults pointed out by me on page 128; the only difference being in the way the bee-space is obtained. I used one of Heddon's excluder honey-boards; Mr. Sambels had an arrangement of loose rebated frames, like that used by Messrs. Abbott in their invertible crate exhibited at the Colinderies (for which they obtained a medal), with the omission of the metal ribs in the centre that supported the sections. The systems of screws and pressure board are just the same as that exhibited by Mr. Dines at Norwich, illustrated in November number of the *B. B. J.*, page 508. The side passages and the arrangement for supporting the dividers are like those in Mr. Corneil's crate, with the addition of the slots which, in my case, were copied from Mr. Greer. Mr. Sambels is surprised I did not say anything about my crate when he exhibited his. The fact is that I did not think 'the idea was worth anything to bee-keepers;' and having adjusted the sections in it a few times, I made up my mind, as I since told Mr. Henderson, that although I had it I should never use it, there being so many crates that were more easily manipulated and better in every way.

Mr. Sambels says, 'as it happens it does one no injury as I have no pecuniary interest.' I can assure him I should be sorry to say or do anything knowingly that would injure him or any man. I should also be sorry to see others give up useful appliances which they have, for new ideas which will only give disappointment; and I think it is the duty of those having some experience to give a word of caution. *Satis verborum.*—JOHN M. HOOKER.

NOTES BY WOODLEIGH. [891 & 893.]

[909.] I am very pleased to see our veteran friend, R. R. Godfrey, to the front *re* the Judging Question, and as the time is drawing near when we shall have to submit our exhibits to the judgment of those who ought to be experts in the art, as a bee-keeper and also an exhibitor of some years standing I thank Mr. Godfrey for his synopsis on judging honey and appliances, and consider it a long stride toward the goal.

I should think the *ideal* bottle or jar of honey should

contain, say, the six good points, and each point should be represented by an *equal* number of marks, say, twenty-five each, and then the judges could credit the number according to merit on each point of the exhibits submitted to them up to the maximum number, twenty-five on each points, or 150 on the whole, six points to a perfect sample of honey.

There is one more point in judging which Mr. G. does not notice, but which, in my opinion, goes to the root of the matter, and has been the cause of much heartburning among exhibitors in the past, and that point is, that judges should make themselves acquainted with the rules and regulations of the show on which they are going to adjudicate. I consider judges should endeavour to meet the wishes of donors of prizes for a specific exhibit, and also be bound by the rules and regulations as much as exhibitors are; and, again, when schedules state expressly and unequivocally for what a prize is offered, I myself think the terms of the schedule should be respected and acted on by the judges.

[893.] Mr. Hooker and Mr. Sambels may both be right as to slotted dividers. Mr. Hooker speaks of them as an 'American invention,' and Mr. Sambels gets the assertion mixed up with Mr. Corneil, the Canadian. There may be many inventions known to Americans and unknown to Canadians; in fact, we here, though divided by a wide tract of water, have equal, if not greater, facilities for knowing American ideas as our Canadian brethren, though the division between their two countries may be of a more skeleton form than a slotted divider.—WOODLEIGH.

CANADIAN EXPERIENCES.

[910.] On page 94, current year *B. B. J.*, 'Amateur Expert' is mistaken in supposing that I am a new convert to the tiering-up or storifying system for securing large crops of best honey. I have practised it and advocated it for some ten years or more. But the idea of placing a portion of the surplus combs under the brood-chamber is new to me, and I am free to admit that I am indebted to Mr. T. W. Cowan's *Guide-book Pamphlet*, No. I. for that idea.

It may be of interest to some of your readers to know that I have ever since commencing bee-keeping used a frame $13\frac{7}{8}$ inches deep and $14\frac{3}{4}$ inches wide, and I wish to say that in my experience a frame of that or similar dimensions has but one redeeming quality, viz., no pollen will ever find its way into the sections. But I think its disadvantages are many:—1. In order to prevent the combs from breaking down some supports must be given them. 2. They are difficult to lift out without hurting bees, and that makes them sting. 3. The large square shape makes them awkward to uncap for the extractor. 4. From the fact that the queen does not seem to care to occupy the lower corners of so deep a frame, more drone-comb will be built than in shallow frames, for worker-comb is built in nearly every case only when the bees are followed closely by the queen. 5. I think the bees go up more readily and work more earnestly and fill both sections and extracting combs fuller over shallow frames than over such deep ones. 6. And last, but not least, a hive built to accommodate a frame from 12 to 14 inches deep presents too small a top for surplus receptacles.

I would just add that in this country opinions differ, but I think the most of us agree that a hive with frames from 9 to 10 inches deep will winter fully as well as that of a deep frame, and build up just as rapidly in spring.—S. T. PETTIT, *Belmont, Ontario, Canada, March 25.*

APIFUGE.

[911.] In your answers to correspondents on page 100 you invite 'independent opinion of its value,' and as Mr. Grimshaw has been attacked in your recent issues by those who have certainly not tried the substance, I think in common justice to it a few words from one who has will be seasonable.

A few days ago I opened a hive for a thorough manipulation, having previously rubbed a few drops of apifuge on my hands, the result being that during the whole manipulation there was not the least attempt at stinging, in fact, all the sting seemed taken out of them by the agreeable odour it possesses; the mere fact of spreading the naked hands over the frames caused the bees not to boil up and take a vagrant flight, but simply to recede quietly to about one inch below the top-bar, just where they ought to be. I removed the dummy and examined each frame separately, having neither veil, gloves, nor smoke, with the thermometer at 60°, and can only come to this conclusion that to the majority of bee-keepers apifuge cannot be other than a boon.—ARTHUR HENDERSON, *Upperhead Row, Leeds, April 2.*

SUNDRY EXPERIENCES WITH BEES.

[912.] As I have received many useful hints about bees from your numerous correspondents, and many interesting details as to their habits and rather eccentric behaviour, perhaps a few of my own observations and experiences may be interesting to the readers of the *Journal*. Having early learned the advantages of giving plenty of room to strong stocks, even before I adopted the bar-frame hive some eight or nine years since, I have seldom been troubled with too many swarms. The year before last, however, several very strong ones *would* come out, and one of these I lost, and this one made me know how far bees could fly upon occasion. On going home from my work on Saturday, at about two o'clock, I noticed a strange commotion in one of the hives and immediately after a large swarm issued which I watched in expectation that it would settle, but noticing that the centre of the circle was gradually shifting down a field joining my garden, I got at once over the fence and followed at a gentle trot down the field, all the while saying to myself, 'Now, if I had not been at home this swarm would have been lost.' Instead, however, of settling, as I expected they would, in the fence at the bottom of the field, they kept steadily on in their circular dance across three or four more fields and a part of a common, and appeared to be flying direct to a large tree about a mile from where they started, but instead of settling there they turned at right angles from this tree in another direction, taking in their course across a field of wheat.

Thinking I might do some damage to the wheat, I hesitated to follow them. It is said that 'he who hesitates is lost.' Whether this be so or no my bees were lost to me from that moment, for they appeared to be making their way to a coppice stretching on for several miles, and though I searched and made inquiry among the cottagers near, I never found them. The interesting point in this is, how many miles must these bees have flown? As they were flying in circles all the time it must have been considerable. The next morning I was about taking a walk with my son, to see if we could find the vagrants, when another swarm issued from a hive near, and this, we found, had settled very high indeed in an elm-tree, near by my cottage, and at the extreme end of the branch quite out of reach. This, however, we hived very easily by passing the clothes-line over a branch above, and by cutting the branch off on which the bees had clustered they were gradually lowered and shaken over the bars of a hive prepared for them, scarcely a bee being lost or injured. Of course, care had to be exercised that the branch did not suddenly snap off.

I mention this as there have been some suggestions as to preventing bees from flying so high, which might not always succeed, even if you were watching at the time. —C. SHUFFLEBOTHAM, *Coventry.*

RESUSCITATION.—A WRINKLE.

[913.] It may be of interest to state how I recently rescued a stock from almost certain non-existence.

On hurriedly examining my seven stocks in beginning of February I found that one of two that I had wintered on candy alone had almost finished its cake, and I at once determined to try the Simmins plan of placing sugar over the frames. This I did, but as I subsequently found, put back the quilt rather negligently, thus allowing the heat to escape. A fortnight later, seeing that the bees of this stock did not avail themselves of a fine day to have an outing, I examined again and found the sugar untouched and the bees with only a glimmer of life in them, many indeed dead. I was in a fix. Take them into the house I could not, for the other members of the household are by no means in love with my pets. Suddenly I struck upon an idea and forthwith put it into execution. The sugar was taken off—a small quantity of granulated honey placed near end of frames instead—the quilt placed and (this is the idea) a heated brick laid on the quilt. In a few minutes I was satisfied that the scheme was a success. The colony was saved.—WELSH NOVICE.

FOUL-BROOD, &c.

[914.] Foul-brood is not a pleasant subject for bee-keepers, but it is a very necessary one sometimes to face, for it causes immense discouragement and loss. I have long recommended my parishioners to take up bee-keeping as a pleasant and profitable occupation for their leisure hours; but foul-brood has wrought such havoc amongst us, that I have had cause to regret that I have ever done so. I should, consequently, be truly glad if some simple and certain method of cure could be found out, and also if the subject could be brought forward still further in your columns.

Finding the disease reappear in my own apiary last year, I procured a salicylic fumigator, but was surprised at its costliness—too much, by far, for a poor cottager. I used it perseveringly, and it certainly seemed to check the disease, as I have not seen as yet any sign of its having spread beyond the two hives, adjacent to each other, in which it first appeared; but whether it has cured it remains to be seen. I opened the diseased cells as far as possible, and the salicylic fumigation appeared to dry them up. I also poured into them syrup medicated with Cheshire's prescription; and kept in each hive a lump of camphor. Examining these two hives on February 21st, to see how they had passed through the winter, I find that, although one appeared to be strong and in a healthy state, the other had dwindled down to a mere handful of bees, without a queen, although I gave it a new queen late last autumn; so I united the two together.

On a former occasion, when troubled with this annoying disease, I destroyed hives, frames, and combs, isolated the bees, and commenced altogether afresh; but I hope that this will not be necessary this time. The hint given by the writer of 'Useful Hints' as to the 'use' of a piece of calico saturated with a solution of carbolic acid, I found extremely 'useful' last year; it not only dispersed the bees quickly from full sections, but it also, several times, acted admirably instead of smoke, and quieted some fierce Ligurians when smoke seemed useless. Many other hints given in the *Journal* are very valuable, and the kindly feeling shown by your correspondents, and their willingness to help one another, are, I think, very pleasing. I cannot help hoping that, with a little further advance, a few more difficulties removed, and a few more 'Useful Hints,' bee-keeping may attain a position and success which it has not yet obtained in this country.—RECTOR.

P.S.—I intend to try a Jones-Heddon hive this year; the principle of it seems excellent, but I doubt its adaptation in its present form to our climate.

NOTES ON BEE-HIVES.

PAINTING THE INTERIORS OF WOODEN HIVES.

[915.] From careful experiments for some time past, especially during the whole of last winter, confirming them by tests during the present one, I come to the conclusion that there is not the slightest necessity nor advantage in either painting, varnishing, or otherwise coating the interior of hives. The use of propolis is not to condense aqueous vapours, as Rev. H. W. Lett supposes or intimates in his recent communication to the *British Bee Journal*, but to close up chinks, to keep out enemies and robbers, to cover rough surfaces and objectionable ones, to preserve the interior from decay and from the attacks of animal and plant life, and particularly to keep out currents of air.

Bacillus Gaytoni is all fudge—it is true, however, that such symptoms described under this heading, or *Bacillus depilis*, appear, but my experience and experiments point undoubtedly that these are brought on and are the results of bad and imperfect ventilation. Bees do not cluster in the manner stated on page 117 so much for the reasons there stated as for the fact that that part of the hive is nearly always best ventilated and free from draughts. A cold draught is as destructive to the health of bees as it is to our own. But when the air is not renewed in a hive of bees, and their exhalations condense into water during cold weather, the bee-hive resembles a damp cellar; the honey, souring in those combs on which the bees cluster, gives them dysentery and other disorders. We need not wonder what killed the bees when we had covered them up so warm!

During the past year I found a colony of bees in a flourishing condition, the combs of which were suspended from the surface of a beam of timber in the open air, at the Fridd Farm, Tref Eglwys,—they had reared a large quantity of brood, and collected from eight to nine pounds of honey for future use, and all done in a very exposed position. Of course, this does not prove that protection from the British climate is not necessary, and of no advantage; but I have found several similar examples, proving that propolis is not necessary to condense aqueous exhalations and other vapours in order to supply them materials to use their honey when in a candied condition, at any time. A damp atmosphere is not necessary and helpful to bees to rear brood; the air in the hive should be as pure and dry as we require for our own room at all times. A painted or varnished interior tends to lower the vital energies of the bees, and lowers the temperature of the cluster—even when there is a proper entrance to the hive. The best covering for an interior would be a layer of cork. We should go a step further back than the straw skep to study the interior of a hive, *i.e.* to a hollow tree, or to a hollow wall. The straw hive of old, as long as it is new, is known to be the best of all wintering hives, but it is no better than a wooden box so soon as its inside is covered with propolis, excepting that it is not likely to be displaced internally so much by its meddlesome owner, and that the bees generally have time to arrange their waxworks to properly ventilate or turn the air-currents. The following is a good rule: 'Have a strong colony with plenty of honey, and the air in your hive as pure and dry as you require it for your own room.'

I consider an oil-cloth a most dangerous winter covering. An excellent cover is a straw mat. In order to keep the straw from being glued over, a piece of linen cloth or calico should be kept next the bees. A box of chaff, or, better still, a box of cork-dust, might be substituted for the straw mat, over any of which should be placed a flat board under a heavy weight.

Having regard to your space, I am sorry I cannot detail my experiments to show how sensitive bees are to atmospheric influences and temperature. I think we can safely lay it down as an axiom that bees do not use their

own condensed exhalations, and that such exhalations are highly injurious to them, if allowed to remain in their hive; furthermore, I am sure these are easily demonstrable facts. Great care should be exercised in uniting several lots of condemned bees at end of each season.—T. Bonner-Chambers, F.L.S., *March 24th.*

HIVE CONSTRUCTION (P. 149).

[916.] I do not know for how long the honour of the improvement, consisting in avoiding plinths, has been ascribed to either Mr. Howard or Mr. Buchan. But this I know. That for at least ten years I have made my own hives without plinths, by placing the floor-boards inside the outer walls and the roofs outside them. My plan is fully described and illustrated in the *Journal*, vol. xiv., p. 57.—F. L.

Replies to Queries.

[889.] *Bee Hives.*—(Edward J. Gibbins.)—See *Bee Journal* for Jan. 21st, 1886, Feb. 4th, 1886 (86), and Root's *A B C of Bee Culture*. The same question was answered for you by several bee-keepers in March, 1886. Mr. Simmins, of Rottingdean, has a very large bee-house. Perhaps he would give you better information.—W. B. Webster.

[890.] (H. W.)—Although I have never tried mixing formic acid with syrup with the idea of preventing or curing foul brood, I find there is considerable chemical affinity between formic and carbolic acids; the formula of formic acid being CHO HO, that of carbolic C_6H_5HO. The Bari and other tribes of the Soudan consider that milk is rendered more wholesome by washing their milk vessels with the excreta of the cow. A similar course may be beneficial to the bees, formic acid being their excreta; but I should prefer waiting evidence before applying these means.—W. B. Webster.

Echoes from the Hives.

Honey Cott, Weston, Leamington, April 11th.—There have been but a few nice days lately that bees could fly; it has been dull, with a north-east wind that has cut without mercy. To-day (Bank Holiday) the wind is keen from the east, but the sun is warm, and the bees have taken advantage of it, and have brought in pollen in quantity. The first thing in the morning I regaled them with pea-flour, for which they have a great liking. I have examined a good quantity of stocks, and taken spare combs away, but to say that all stocks are strong would be too much to say, though I have some good stocks. Even those that had the most food some time back have used it up very much. The palm is not much out at present, and no blossom scarce as yet, only a few blossoms in a sunny corner, though there is great promise when the plums and apple-trees do come out.—John Walton.

North Stafford, April 11th.—Yesterday being a nice sunny day, I noticed my bees (blacks) at most hives bringing in a moderate supply of pollen, which, I imagine, must be gathered chiefly from the palm willow, so I thought to-day being fine I would venture an examination of them, and found brood in various stages and quantities from small patches on a single comb to three almost filled combs. All bees appear healthy in both my fourteen bar-frame hives and five skeps, the latter of which are all driven bees. I have lost two stocks, one disappearing suddenly and mysteriously, leaving sealed stores, the other perishing, as I think, for the want of winter passages in two centre combs in a spell of hard weather, all bees being dead with plenty of sealed stores in rear combs.—E. C.

NOTICES TO CORRESPONDENTS & INQUIRERS.

F. Girdlestone.—*Inverting Skeps.*—The skep, after inversion, is sunk beneath the level of its original stand, the same entrance being used. There have been scarcely any details as yet published. In your district there was a very bad honey crop last season. If you had fixed some pieces of comb in the super the bees would have worked. We had a similar case, but within half an hour of placing foundation in the supers they were busily engaged drawing it out, and they filled it in ten days. Why not use bar-frame hives? You have greater control over your bees.

Inquirer.—1. *Hive-roofs.*—If you make each division of the hive to overlap the one underneath, and have the roof perfectly sound and watertight, your hives will keep quite dry. 2. *Queens.*—Unless the alighting-boards of your hives touch the ground, which must be perfectly free from grass or weeds, you will lose the queen, as even under these conditions she sometimes fails to get back into the hive unless you are there to look after her. 3. *Uniting.*—Unite to another stock, caging the queen for greater safety. This must be done on a nice warm day. 4. *Enamel Cloth.*—If your stocks are strong, hives watertight, and plenty of ventilation, the enamel cloth will not be damp. Have you plenty of warm covering over the enamel cloth?

J.—1. The 'W. B. Carr' metal ends can be used with Lee's new frames. 2. The wire may be obtained from the dealers in bee appliances. 3. Mr. Lee's address is attached to his communication on p. 160.

J. Orr.—A reply to your question by Mr. Lee will be found on p. 162.

M. E. M. and J. G.—The samples of sugar forwarded would be found servicable.

M. O.—The comb forwarded was not affected by foul brood; the special appearance of some of the cells was caused by a coating of mildew on the pollen through damp. We should not destroy the combs. Rub them with a soft brush, and spray with salicylic acid, and return to the bees.

T. G. Barlow.—W. P. Meadows, Syston, Leicester.

John.—Abbott Brothers, or W. Baker, Muskham, Newark.

W. H. Hughes.—The syrup prepared according to the recipe is quite innocuous; the disaster has probably resulted through the rustiness of the feeder; we should suggest that the feeder be changed at once.

J. W.—The principal use of metal ends is to keep the correct distances of frames; though for many reasons at times advanced bee-keepers find it desirable to dispense with them. The metal ends mentioned will be found as serviceable as any others in the market. Both metal ends and broad-shouldered frames have their special advantages.

A. P. J.—The bees do not appear to have died of dysentery. You have taken the wiser course of altering your mode of feeding. Some of our correspondents have experienced the same difficulty with feeding bees in the manner mentioned. The sugar forwarded is not that which we would recommend.

W. M.—*Foul Brood.*—Use the Cheshire Phenol Solution as given on p. 153 of our *Guide Book*.

J. W. H.—1. *Bees by the side of a Railway.*—It would not be advisable to place them so close as to be shaken by passing trains. The small number of bees on the wing caught by the trains would make no practical difference. 2. $1\frac{1}{2}$ *inch Sections.*—You may do without separators, but some care is necessary to prevent some of the combs being built out too far at the expense of the adjoining ones. 3. *Foundation.*—Seven sheets to 1 lb. is quite heavy enough. The sample you send is dark, but the wax is pure and it will answer very well for stock hives. 4. *Sections in Frames.*—The $4\frac{1}{4} \times 3\frac{1}{2} \times 1\frac{1}{8}$ would not fill standard frames exactly. You would find giving the sections in racks in the usual manner better than several frames of six sections each.

M. E. K.—There is every probability that your queen is in full performance of her maternal duties. Nothing can be done for the 'handful' of queenless bees left in the other hive.

C. C. M. —1. Providing the queens are young—last season's—you have every chance of obtaining a surplus. 2. Read *The British Bee-Keepers' Guide* for transferring. As soon as warm weather sets in. 3. A frame of brood would be

of much service, if you can spare it from other colonies and there are sufficient bees to take care of it. You should not examine colonies for sealed brood in January, they ought then to be left entirely undisturbed.

J. A. Watson.—The sample of Californian honey is, we should say, some that has been a long time in the country; and a sale not having been effected at the original price it has been reduced to that at which it has been offered to you.

Received two pieces of comb, but with no accompanying letter or address.

Received from Mr. J. H. Howard, Holme, Peterborough, and Mr. W. P. Meadows, Syston, Leicester, their 'Appendix of Modern Bee Appliances.' This catalogue, containing many important novelties and improvements, is well worthy the attention of all bee-keepers.

Received from Thomas G. Newman & Son, Chicago, Ill., their Illustrated Catalogue of Bee-keepers' Supplies for 1887.

Erratum.—P. 141, col. 2, line 4 from top, *for* inter *read* winter.

Heddon Hive.—I notice in this week's *B. B. Journal* that J. H. Howard says on page 151, 'Mr. J. Hall, No. 876, gives an ingenious one-way watertight joint, but how about 'tother way up?' Mr. Howard evidently does not fully grasp my idea. There is no ''tother way up' to trouble about, as the loose zinc frame has not to be inverted at all, but always remains in the position shown in sketch. However, I don't think it is worth while spending much time in trying to improve the Heddon hive, as I expect it will soon be a thing of the past.—J. H.

Show Announcements.

June 23, 24.—Suffolk Agricultural Show at Bury St. Edmunds. Entries close June 16. J. Huckle, Secretary.

July 11-15.—Royal Agricultural Show at Newcastle-on-Tyne. Entries close May 12. J. Huckle, Kings Langley.

July 20-22.—Lincolnshire Agricultural Society at Spalding. Entries close July 4. R. R. Godfrey, *Secretary*.

July 26, 27.—Warwick Agricultural Society at Sutton Coldfield. J. N. Bower, Knowle, Secretary.

August 3-5.—Yorkshire Agricultural Society at York. Secretary, H. L. Rickards, Poole, near Leeds.

Business Directory.

HIVES AND OTHER APPLIANCES.

Abbott Bros., Southall, London, and Merchants' Quay, Dublin.
Appleton, H. M., 256A Hotwell Road, Bristol.
Baker, W. B., Muskham, Newark.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
Burtt, E. J., Stroud Road, Gloucester.
Edey & Son, St. Neots.
Howard, J. H., Holme, Peterborough.
Hutchinos, A. F., St. Mary Cray, Kent.
Meadham, M., Huntington, Hereford.
Meadows, W. P., Syston, Leicester.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
Stothard, G., Welwyn, Herts.
The British Bee-keepers' Stores, 23 Cornhill, E.C.
Webster, W. B., Wokingham.
Wren & Son, 139 High Street, Lowestoft.

HONEY MERCHANTS.

Abbott Bros., Southall, London, and Merchants' Quay, Dublin.
Baker, W. B., Muskham, Newark.
Baldwin, S. J., Bromley, Kent.
British Bee-keepers' Stores, 23 Cornhill, E.C.
British Honey Co., Limited, 17 King William St., Strand.
Howard, J. H., Holme, Peterborough.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.

FOREIGN BEES AND QUEENS.

Abbott Bros., Southall, London, and Merchants' Quay, Dublin
Baker, W. B., Muskham, Newark.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
Benton, F., Munich, Germany.
Howard, J. H., Holme, Peterborough.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
Simmins, S., Rottingdean, near Brighton.

METAL ENDS.

Abbott Bros., Southall, London, and Merchants' Quay, Dublin.
Baker, W. B., Muskham, Newark.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
Lyon, F., 94 Harleyford Road, London, S.E.
Meadows, W. P., Syston, Leicester.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.

COMB FOUNDATION.

Abbott Bros., Southall, London, and Merchants' Quay, Dublin.
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Carriage not paid. A Queen arriving dead, if returned at once, will be replaced without charge. Terms, Cash. Be particular to give the exact Address and Name of the Station. Queens reared by selection. Five per cent discount on an order for 10 Queens or Colonies at a time; 10 per cent if 20 Queens are ordered: 15 per cent on 50; and 20 per cent on 100 Queens or Colonies ordered at one time. Write, if possible, in French or German. We have been acknowledged as the sole successors of the late A. Mona by the official Federal Gazette. See notice in *British Bee Journal* (page 424 of 9th Sept. 1886).

A2393 (16—4

[IMPORTANT NOTICE.—In offering Home-reared Queens, it should be distinctly understood that only purely mated Queens are sent out. Hybrid crosses are so named, and are mated as stated, in connection with respective prices.]

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Imported Queens, **10/6**, Home-reared, **7/6** each.

These have nearly all the good qualities of every other race combined, and none of their defects, while they winter better than any, are very gentle, and good workers; also beautiful in appearance, having several broad white bands on the abdomen.

An impression prevails that these bees swarm to excess, but as the demand has been greater than the supply, and there were no queen-raisers in their native land, the probability is that many old queens have been sent over, and hence undue swarming has resulted; but with *young* queens, which alone I send out as 'home-reared,' this race, judging from my own and several friends' experiences, can be restrained from swarming, however energetic the queen may be.

Having an excellent stock of these bees on hand, during the season I shall be raising queens on a large scale from selected imported mothers of *different strains*, particularly from two referred to below as 1 and 2; and having many others from which I am breeding thousands of fine drones, I am enabled to offer queens which will produce some of the choicest pure stock yet seen.

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No. 1. Imported Yellow Queen, selected from a large number for fine appearance, turned out exceedingly prolific and produces bees of good colour. Daughters of same are either yellow or ringed, and therefore readily found among workers.

No. 2. Imported, and of another strain; produces some dark queens, but generally 'ringed' or yellow-banded. Workers very good. During season 1886 this queen produced more bees, and the latter more honey, than those of any other stock in the same apiary, consisting of Ligurians, Hybrids, and Syrians; though when imported in Autumn of '85 she was placed with rather a weak lot.

My drones are reared from still another strain, and from stock which in 1886 drew out foundation and stored heavily during the latter part of August (no heather). While therefore I offer the purchaser young queens bred from stock of good character, my arrangements provide for an infusion of fresh blood; advantages which are not to be obtained with imported queens of any one strain bred for many years in the same district.

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Home-raised Queens, **10/6**.

These are the most beautiful bees yet cultivated, and can be handled without smoke. They are exceedingly good honey-gatherers, but are suitable only for extracting purposes, as their cappings are not of good colour.

Cyprian Queens crossed with Carniolan drones, and Carniolan Queens with Cyprian drones, **7/6** each.

The former are very desirable bees and more hardy and energetic than pure Cyprians.

The latter are the best 'all purposes' bees known, and are sure to give satisfaction.

Any other cross with Cyprians can be supplied, but I cannot undertake to supply those not mentioned at short notice.

My Cyprian Queens and drones are reared only from stock which can be handled like flies at any time, whether honey is being brought in or not, so that both the pure bees, and those crossed with Carniolans, will be gentle in disposition.

SYRIANS.

These are not recommended, but can supply them bred from gentle stock, and crossed with Cyprians or Carniolans for **10/6** each.

LIGURIAN, OR ITALIAN ALP BEE.

Imported or Home-reared, **7/6** each.

My Imported Queens are from very choice strains, and have been much admired.

Those raised at home are bred from a queen whose bees last season gathered over 50 lbs. in seven days, and gave the largest increase in the same apiary.

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Bearing in mind that many still prefer the old Black race, I am breeding from a strain, respective stocks of which have produced (No. 1, '85), the mother colony 150 lbs. comb.

(No. 2, 1886), 198 well-finished sections, 60 others partly filled, and the stock combs at end of season one solid block of honey.

(No. 3, 1886), first swarm, 78 lbs. comb.

I offer young Queens of this strain mated with drones from either choice Carniolan or Cyprian stock, as may be desired, at **7/6** each with usual guarantee.

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Bees on 3 combs in Standard frames	**10/-**
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☞ My Queens are all very prolific, long-lived, and much larger-bodied, than the majority of those supplied by others, as they are reared naturally, under the swarming impulse, in April, May, and June, from the strongest of my forty colonies of Bees kept in double-walled moveable frame-hives, and all having choice Queens, which produce workers so gentle that they can be handled without smoke, and even without a veil on the face, just as I do myself (see Mr. S. Simmins' statements on page 37 of his work entitled, *A New Era in Modern Bee-keeping*). This is principally owing to the fact that I have weeded out from my Apiary all such Queens which appeared to be weak or producing troublesome workers. Address—

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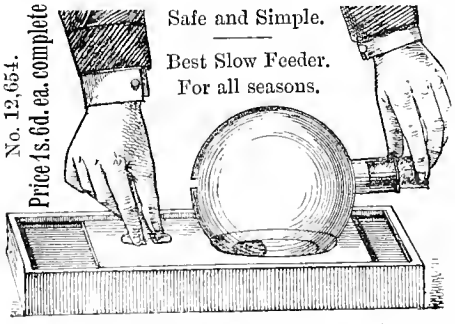

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Editorial, Notices, &c.

EXTRACTED OR SECTION HONEY?

April is now well advanced, and the weather still continues unfavourable for the bees. Bitter east winds still prevail, varied occasionally by north-east. The past winter truly has been most trying. Everything is backward, vegetation is almost at a standstill, although fruit trees are doing their very best to show signs of life. All things, however, come round to him who will but wait; and when our patience is well-nigh exhausted we may expect the welcome spring, and with it renewed animation in our apiaries.

With the honey season of 1887 (shall we call it the Jubilee year?) now so close on us, many apiarians will be exercising their minds as to which is better to work for—'Extracted or Section Honey.' Given as a fact that there are tons of the much-coveted nectar secreted in the season without any trouble on our part, but provided by an all-wise and bountiful Creator, and that we have strong and healthy colonies to gather it, it rests with the bee-keeper for the most part to decide whether sections or liquid honey will return him the more profit.

If we are to listen to our Canadian friends sections must be the rule, as we have been told that they have secured the markets in England for extracted honey, and in future British bee-keepers must depend solely on comb honey for their profits.

This information we accept with all due courtesy and caution. But we have it from good authority that English honey is holding its own in spite of all opposition, and is now sought after and appreciated as it should be.

Judging from the number of new methods and appliances introduced since this time last year, many stocks, and perhaps apiaries, will be devoted to trying which is really the best, and we shall be pleased to chronicle results at end of season.

But we must not on this occasion step aside to spy into experimental apiaries in this year of joy and jubilee. Judging from the diminution of importations it clearly demonstrates that British honey is pushing its way into the markets in which we were told it could never gain a place.

British honey is very different from what it used to be when our *Journal* was first started; good and clean honey used to be the exception, but now it is almost the rule. We are confident that there is a profitable and a ready market for both extracted and section honey; in some places the former, and in others the latter, will find the readiest sale, whilst in others an equal quantity of each will be required. It will be wise for bee-keepers to study their markets and work accordingly. Some apiarians are beginning to lose heart and to say with the low prices of honey bees will not pay. But such are, we venture to say, mistaken, as with present quotations very excellent returns can be made from this pursuit. We have lately heard that agriculture being in such a state of depression farmers are advised to look more closely into the smaller industries of the farm. We are reminded of the large sums of money annually sent out of this country for the millions of eggs exported from France. We are told, on the other hand, that the French are a thrifty nation and are content with small profits; be this as it may they manage to get no unworthy sum in return. Poultry-farming pays we have not the slightest doubt, but it cannot be for an instant compared with bee-farming. With this last there is not much trouble; not a great outlay; no three acres required; no rent to pay for pasturage. The bee is free to wander where she likes, visiting this bright flower and that fragrant bush, performing many duties, gladdening man's heart by her joyous hum, and returning to her master with her rich store. The channels for the disposal of honey are now so multiplied that the bee-keeper is saved the trouble of hawking it about.

We are confident that even with existing circumstances bee-keeping can be made to pay, and pay far better than any other industry, and we cannot do better than re-echo the French Bishop's advice to his poor clergy, and to say to all in search of a means to increase their incomes, 'Keep bees, keep bees.'

ANNUAL EXHIBITION OF THE ROYAL COUNTIES AGRICULTURAL SOCIETY.

We have pleasure in announcing that this Society, which has by its liberal assistance to the bee-keeping industry, established a reputation second only to the R. A. S. E. for importance amongst bee-keepers and others, intends holding its 1887 Show at Reading, in

the latter part of June. Last year the Show was held at Portsmouth, and the Hants B. K. A. succeeded in organizing a very large and important honey department. This year the Berks B. K. A. have invited the Hants Association to assist them in organizing a still larger JOINT Exhibition, and already preparations are on foot for ensuring a thoroughly representative exhibition. A liberal schedule is being arranged, and the work of arrangement, &c., has been entrusted to a joint committee consisting of—(*Berks*) Mrs. Curry, Rev. R. Errington, Messrs. F. Cooksey, H. Fewtrell, W. Woodley, A. D. Woodley; and (*Hants*) Rev. W. E. Medlicott, Messrs. H. W. West, Evan Maberly, and E. H. Bellairs.

BEESWAX AND ITS CONVERSION INTO MONEY.

By J. DENNLER.

(*Continued from page* 147.)

It is to the interest of every bee-keeper to seek to protect his combs from the ravages of the wax-moths. These moths, of which there is a large and small kind, lay their eggs in the combs, or in the *débris* of the bee-hives. It is the larvæ which come from these eggs which spin round the comb and eat it. It is specially the large kind of larvæ which very much increase the difficulty of preserving the combs. The right means of getting rid of them or killing them consists in hanging up your stock of comb in hermetically sealed boxes, and in the hot time of year burn a piece of sulphur in it every three or four weeks. One can also protect the combs from the wax-moth by hanging them up in very airy places.

ARTIFICIAL COMBS.

There came a time when the bees did not content the demands of the bee-keeper in what refers to the accuracy in the building of the rows in the middle of the comb, and the habit of the bees in beginning to build their comb on the ledges and the sides gave some bee-keepers the idea of providing the middle of the small frame and wood for the comb with a sharply projecting cage of wood (Giebelhausen and Böttner). A line of wax was also recommended (Dr. Honert). The bees were to build regularly on it. Sometimes they did and sometimes they did not. Tongs, also, were prepared which represented the pressure of the cells on the little pieces of wood (Wilde).

Otto Schulz writes (*History of Artificial Comb*) that it certainly succeeded in inducing bees to build straightly by time-wasting manipulations, yet all one's wishes were not fulfilled, and the vexation was especially great when the bee-keepers in the early spring put in a little frame provided with a pressed-out piece of foundation and at the beginning of the building perceived that principally drone-cells were being built.

The carpenter, Mehring, of Frankenthal in the Palatinate, was the first to have the happy idea of constructing a pair of plates of wood with the corresponding indentations of the foundations of the cells, with which he pressed out in wax the first partition walls of the comb. Dümmler in Homburg, Kunz in Jägendorf, Sand in Gundau, Peter Jacob in Fraubrunnen in Switzerland, perfected the ingenious discovery of making, and soon provided very useful wares. But it was Otto Schulz, of Buckow, who, later on, brought the artificial combs to a perfection hitherto maintained. Since then he has never been unfaithful to his principle—*to establish a product of blameless perfection at a low price and in great quantities.* That this undertaking has grown in the hands of the 'Bee-lord' (literally the bee-village-amgistrate), as our manufacturer is called in the bee-world, is to be seen by the fact that his business increases every year, and that, for instance, in 1885, he produced and despatched about 18,000 kilogrammes (a kilogramme = 2⅕ lbs.). Competition was not wanting. Artificial comb manufactories shot up like mushrooms from the ground in the two last decades. Of the best known we may mention in *Germany*, Friedrich in Griefswald, Hermann Bruder in Waldshut (Baden), A. Herlikofer in Gmünd (Würtemberg), Adam Wendler in Aschaffenburg (Bavaria), Weyell and Breidecker in Sauer-Schwafbenheim (in Rhenish Hesse), Voight in Bahn (Pomerania). In Austrian *Hungary*, Anton John Wagner in Vienna, Joseph Ludwig, the Master Carpenter of Moravian Bee-keepers' Union in Brünn; in *Switzerland*, Siegwart in Altdorf (Uri), Hermann Brogle in Siesseln; in *England*, Abbott of Southall, London; in *America*, Ch. Dadant of Hamilton (Illinois).

By the recent discovery of an artificial comb-presser bee-keepers are enabled to press out for themselves the artificial combs they require, instead of selling the wax they have got at ridiculous prices. Rietsche in Bieberach (Baden) supplies such presses, as well as Hermann Greve, in Neu-Bradenburg (Mecklenburg), and Ihring and Fahrenholz, in Berlin. The Italian hand-presser of Guazzoni, who also invented the wax-holder, is a very practical hand-presser (see illustration in the original). Of course in the home manufacture of these artificial combs one must not expect first-rate goods, for every trade needs long practice, and a bee-keeper will seldom attain to this in the manufacture of artificial comb if he has only to produce what he requires for his own wants.

(*To be continued.*)

Foreign.

TASMANIA.

From the *Hobart Mercury* of the 19th of February we take the following cutting:—'St. David's Club.—The usual weekly meeting was held at eight o'clock last evening in the club-room. Present—the Dean (in the chair), Revs. G. F. M. Fielding, G. W. H. Dicker, G. A. Breguet, Mr. B. T. Solly, and other members. The business of the evening was a lecture by Mr. Fielding upon "Bees and Bee-Culture," a subject upon which the rev. gentleman is somewhat an enthusiast. He gave a *resumé* of what is now termed the "old-fashioned" method of bee-keeping, passing on to speak in detail of the various steps and stages which have brought bee-culture up to its present pitch of perfection. Dividing the hive into the three divisions of queen, workers, and drones, the lecturer described how the work of the hive was carried on, how certain laws were conformed to, the industrious and ingenious habits of the inmates, &c. A feature of the lecture was the exhibition of the many and varied contrivances for facilitating the storage and yield of honey, together with different breeds of bees. A vote of thanks was heartily accorded the lecturer, and the meeting adjourned.'

[We hear also from other sources that Mr. Fielding has delivered courses of lectures on the improved methods of bee-keeping, in Tasmania. With their fine climate, and the introduction of modern appliances, and the 'different breeds of bees,' our Antipodean daughters bid fair to equal, if not to surpass, the mother country. —ED.]

NEW ZEALAND.

HUMBLE BEES.—The *Dunstan Times*, New Zealand, of February 4th, reports 'that a humble bees' nest is to be seen in a garden at Otekaike,' and says, 'The *Oamaru Mail* states that these useful insects have made their appearance throughout the district with remarkable suddenness.'

[We congratulate our brethren at the Antipodes that

after so many trials, extending over a long course of years, the introduction of the humble bee is at length *un fait accompli*.—Ed.]

A Visit to the Matamata Apiary.

The following is taken from the *New Zealand Herald* of March 6th, 1886:—

'Amongst the several rural industries now being carried on at Matamata, there is none more generally interesting to visitors than that of apiculture. Bee-farming has now become an established industry in England, America, on the Continent of Europe, and in Australasia, and deservedly so, for very few industries connected with rural pursuits have made greater progress during the last few years, or shown better results when systematically carried out. The importance of apiculture as an industry attracted the attention of Mr. J. C. Firth, who, with his characteristic enterprise, started the nucleus of a bee-farm some three years and a half ago, with Mr. Hopkins, the well-known apiarist, as manager. The result has proved the good judgment of Mr. Firth, for instead of the whole of the honey that is secreted in the clover blossom now "wasting its sweetness on the desert air," as formerly, many tons are annually harvested, which find a ready market, at a remunerative price. There is one thing worthy of mention. The honey raised at Matamata is without doubt equal to the best raised in any part of the world. That is the opinion of everyone who has tasted it; and the demand for the "Tower brand" of honey is increasing so rapidly as to warrant the further extension of the apiaries.

'Connected with the management of the apiaries, of which there are two at present, there are two substantial buildings—one containing a large workshop, in which the hives, frames, and other appliances are made, a honey-room for storage of honey, a fumigating room, and an office. The first thing that struck us on entering were the large stacks of 2-lb. tins of honey—close on 10,000. These had been brought from the principal apiary, and were ready for soldering, preparatory to being labelled and cased for market. At the time of our visit the season's crop of honey was nearly all in, and this will amount to about ten tons—the produce of 200 hives—an average of 100 lbs. per hive. What an enormous quantity it seems to be gathered by such little workers; well may the honey bee be held up as a pattern of industry. In the fumigating room, which for the nonce had been turned into a wine room, we were shown a number of casks containing fruit wines, mead, cider, and vinegar in a state of preparation. These had been made principally with honey, and gave promise of turning out excellent in quality. The honey used in their manufacture had all been obtained by washing the cappings of the combs; the portion shaved off before extracting the honey from them, and which is useless, for market. Mr. Hopkins, the manager, is of opinion that were mead, honey, and fruit wines, honey vinegar, and other such like products obtainable, an immense demand would soon spring up for them. We have no doubt that this might be made a very profitable branch of bee-keeping if bee-keepers would but turn their attention to it. It would not only be the means of utilising a vast amount of surplus honey, but a great benefit would be conferred on humanity by placing within reach some wholesome, health-giving beverages in place of the vile compounds now sometimes sold as wines. There is no reason why we should not again revive some of those ancient beverages, such as mead, metheglin, miodomel, so highly prized when honey was considered as an indispensable article of food for man, before sugar took its place.

'The other building is used for manufacturing comb-foundation. To those of our readers who have not seen this artificial aid to bees, we may explain that comb-foundation is sheets of thin beeswax impressed with the bases of the honey-cells, thus forming a foundation upon which the perfect comb is built. Usually these sheets are made about 16½ inches long, 9 inches wide, by one-eighth of an inch thick. These are fastened in small wood frames, and placed in the hives for the bees to finish. It is calculated that for each pound of comb-foundation used there is a saving of 15 lbs. of honey, to say nothing of the numerous other advantages gained. Four of the latest and most improved machines for making it are in use at Matamata, and, in fact, everything that can be devised for purifying the wax and manufacturing a first-class article. Some idea of the progress of bee-culture in Australasia may be formed when we state that in 1879, when Mr. Hopkins first commenced to manufacture comb-foundation for sale, about 300 lbs. were sufficient for all demands; the demand has steadily increased since, and the sales this season amount to five tons. That made at Matamata is in use throughout the whole of the Australasian colonies, and what appears very remarkable is, that several bee-keepers who have gone to the expense of procuring machinery, &c., for making comb-foundation, have found that it pays them much better to send to Matamata for what they require, even to sending all the way from Queensland for it.

'The home apiary, situated near to the manager's, is a small one of about thirty hives, principally devoted to queen-rearing. Here we saw a large number of miniature or nucleus hives, in which the young queens are reared and kept until they are required. Until quite lately none but pure Italian bees were kept and bred in this apiary, but in December last some pure Cyprian queens were imported from Messrs. Neighbour and Sons, the well-known English apiarists. These for the time were located here for the purpose of having the young queens reared from them mated by Italian drones, as the progeny from this cross are now considered to be the best working bees cultivated. There is no danger of any queens reared at this apiary being mated by drones other than those bred there, as the nearest bush is at least five or six miles away, and the nearest apiary is two and a half miles distant. Queens are sent through the post to all parts of the colonies in small ingeniously contrived cages made for the purpose, and will travel over a twelve or fourteen days' journey confined in the mail bags with very little risk of dying.

'The "Burwood Apiary," situated some two and a half miles from the "Home Apiary," is devoted to honey production. The hives—about 22 in number—are set out in long rows in an enclosure of about an acre, surrounded by pine-trees, and are well sheltered. The extracting-house, where the honey is extracted from the combs, stands nearly in the centre of the hives. At the time of our visit extracting was going on. One man manipulates the hives, removing the full frames of honey and replacing them with empty ones. These are placed in tin baskets and taken to the extracting-house, where another man with a peculiar knife resembling a narrow trowel, and called an uncapping knife, shaves off the cappings of the cells into a large can, the combs are then placed in narrow wire cloth baskets which are fixed to a frame-work in the extractor; the framework is then made to revolve rapidly by turning a handle, and the honey is thrown by centrifugal force from the combs against the inside of the extractor. When one side of the combs are emptied they are turned and the other side extracted. From the extractor—which stands on a platform about four feet above the floor—the honey runs into a triple strainer and from there into the honey tank, capable of holding about 3000 lbs. Here it is allowed to remain for a day or two to get thoroughly ripe, when it is skimmed and run off into tins for market. The combs—which are not injured in the least by the extracting process—when emptied are given back to the bees to refill, and emptied again and again. This system of

taking honey is a vast improvement on the old-fashioned way of sulphuring the bees and breaking up and straining or squeezing the combs. By the latter method the delicate flavour of the honey is destroyed, and in fact usually it is not fit to eat; but by the method described the original aromatic flavour which makes fine honey so delicious is preserved and it is kept from all foreign substances. One peculiarity about the Matamata honey is its rapid granulation and very fine grain. In the hottest weather it granulates in about three days and from the time it is extracted, and in more than one instance this season it would not run from the tank thirty-six hours after being taken from the comb. When placed in a dish on the table its colour and grain give it the appearance of butter, from which it is sometimes difficult to distinguish it.

'Mr. Hopkins informed us that the past season has been a very fair one throughout New Zealand for bee-keepers, and that he estimates the season's crop at over 300 tons for this colony. He thinks the Auckland province alone will have produced nearly one half of that quantity. Altogether, we look upon the industry of apiculture as one of much importance to the State, and well worthy of any direct encouragement the State can give it. We congratulate Mr. Firth on his enterprise and the example he has set to other colonists to "go and do likewise."'

CANADA.

Sending Honey to England.

A meeting of the directors of the Ontario Bee-keepers' Association was held on the 16th of March at the Albion Hotel, Toronto; S. T. Pettit presided. We extract the following account of the meeting from the *Canadian Bee Journal*:—

The President explained the object for which the meeting had been called, viz., to decide in what shape our honey should be put up for the English market, and whether or not the Association should undertake to handle the productions of its members.

The first question decided was, that glass was the package to be adopted and that the probable size was one pound.

The question of the Association's taking hold of the matter then came up, and, after much discussion, Mr. Corneil intimated that the Association was not incorporated as a trading body, and unless they procured a special clause enabling them to do this they could not undertake the work. This was concurred in by F. H. Macpherson.

It was decided, however, that the honey must go to England in bulk, to be put up there in the style of package in which it is intended to reach the customer. The package considered most suitable for shipping it was the 60 lb. tin, such as we make and sell, and which was used for the bulk of the extracted honey which the delegates took with them last summer. It seemed to be generally considered that no honey should be shipped to commission men, and that the work would be a matter of private enterprise.

Mr. Corneil advised mixing our honey and blending the flavours to make one uniform brand or flavour. It would be much easier to control the market and keep the reputation we had gained, than by attempting to keep on the market three or four different flavours of honey; and in this Mr. Pettit agreed, with the proviso, of course, that no dark honey must be sent or mixed.

Mr. R. F. Holtermann, in a letter written subsequently to the above meeting, informs us 'that a meeting has since been held by a county association, at which a resolution was passed urging the Ontario Association to reconsider the matter, promising at least 10,000 lbs. of honey on the spot if season permitted, providing one of the four directors would go which had the work in hand last year, and take the honey to England. The Ontario Association has an annual grant of $500; it is proposed that this be taken to defray the expenses of the director, and the balance of expenditure and payment for time be shared by the contributors. What effect this will have time will tell.'

R. McKNIGHT.

In the same number we find an interesting memoir of one of the Canadian Delegates to London, Mr. R. McKnight, whose genial bearing and marked intelligence will be in remembrance by those who were present at the Conversazione at South Kensington, or who visited the Canadian Honey Exhibition. We have much pleasure in transferring this memoir to our columns:—

R. McKnight was born in the County Down, Ireland, in the year 1836, and like many of his fellow-citizens before him he left home and friends at the early age of 19 years, and hied himself to Canada, *viâ* New York, which port he arrived at about the latter part of the month of June, after a six weeks voyage. While in the city of New York he engaged with the captain of a whale-ship to go to the Polar seas on a whaling expedition, but through some delay in the ship's sailing he broke off his engagement. Leaving New York he came West, and in the township of Tossoronto, County of Simcoe, he found employment in a saw-mill. His history shows the ambitious desire of our friend, and to this ambition and a desire to 'stand on the top of the heap' may be ascribed his success in life. Six months in his mill life brought him 'to the head of the class,' and the mill was placed in his charge, and was conducted by him for three years. In 1860 he left the saw-mill and took charge of a school in the adjoining township of Essa, where he remained for three years. Leaving Essa he came to Tecumseth, where, in a school only two or three miles from this village (Beeton), he taught another three years, and during this time he secured the highest grade of a first-class teacher from the County Board. He then bade good-bye to the school-room and entered the military school at Toronto, and in the following spring he bade his adieus to the latter, carrying with him a cadet's commission. The mercantile business then received a share of his attention. He opened a general store in the little village of Markdale, County Grey, where he remained for two years, then selling out and removing to Cookstown, County Simcoe, where he added the drug business to his general store. Tiring of the life of a bachelor he decided to join the army of benedicts, and found his partner in life in the person of Miss McLean, of Elm Grove. In the spring of the year his store and dwelling were destroyed by fire, everything being consumed. He succeeded, however, in paying up every dollar of his indebtedness, and he was hard pressed by the wholesale houses with whom he did business to rebuild, they promising to give him all the necessary support, but he decided it unwise to bother himself with heavy liabilities, and the following fall he moved to the then rising village of Meaford, where he went into the drug and grocery business. It was not long before he became one of its most enterprising citizens, taking an active part in everything pertaining to the advancement of the village. Three years later he was selected by the Reform Convention of East Grey to contest that intensely Conservative constituency against Mr. Flesher, but he was beaten by some 600 votes. At the next election he was again chosen to fight the battle of his party against his old opponent, and this time he reduced Mr. Flesher's former majority by 300 votes. Some two years after this, Mr. Scott, the local member for North Grey, was unseated and disqualified, and he was asked by the Reform Convention to go up and contest that riding. Here, again, he was handicapped,—being practically an outsider, while his opponent, Mr. Creighton, the present member, was editor and proprietor of the Owen Sound *Times*, and was well known throughout the riding. Notwithstanding all this, Mr. M. was only defeated by 59 votes. During all these contests he lost

no friends in his own party, but gained many personal if not political friends amongst his opponents. Shortly after his contest in North Grey the Registrarship of the County became vacant by the death of the incumbent, and Mr. M. was offered and accepted the position.

This removed him from the arena of politics and gave him leisure to practise other pursuits for which he had a strong liking—notably floriculture and horticulture. His home at Owen Sound testifies to his taste and skill in both. Nor does he confine himself to his own home pursuits, but in everything for the good of his town he takes a lively interest. He is at present president of the Mechanics' Institute, a member of the Board of Education, also of the Board of Health, is one of the executive committee of the Board of Trade, and an active member of the Masonic fraternity, indeed his is a busy life.

As a bee-keeper he has had about seven years' experience, and he is fairly well known as one of the leading apiarists. He has been one of the leading spirits of the Ontario Bee-keepers' Association, being present at the convention held in Toronto, when it was first organized, and he presided over the deliberations of that meeting in the City Hall for three evenings. He was elected the Sec.-Treas. of the newly organized Association, and on him devolved the perfecting of the organization, which he did thoroughly and well. For two years he held this position, and during that time edited the Bee Department of the *Canadian Farmer*. The following year he was elected president, and he has been on the executive committee ever since. His colonies now number 175, the product of two hives bought seven years ago. In the meantime he has sold perhaps $200 worth of bees. He was appointed one of the delegates to represent Ontario's honey display, and it was a most fortunate thing that Mr. McKnight was appointed one of the Commissioners at the Colonial. The magnificent display of honey was due in a very great measure to his efforts, as after a fair trial we all found that he possessed the *art* of staging the goods to the best possible advantage, and we think we may say without fear of contradiction that he has no superior, if an equal, in this line.

To him alone was left the entire arrangement of the display, and the bee-keepers of Ontario should feel very grateful for his untiring efforts in watching and carefully keeping the display up, changing it from day to day and from week to week, making it always look fresh, as if just placed in position.

He not only worked in the honey building, but frequently spent hours after midnight with the pen to maintain the honour and reputation of the bee-keepers of Ontario. He made many warm friends while there, and after he left many a kind word could be heard from those who regretted he had to leave so soon.

BERKS BEE-KEEPERS' ASSOCIATION.

The Windsor branch of the above Association held their second social gathering at the Albert Institute, Windsor, on Tuesday, April 12th. At half-past six a committee meeting was held, when it was resolved to hold the Annual Show at Windsor this year in conjunction with the Prince Consort's Association meeting. It was also resolved, on the motion of Mr. G. P. Cartland, that the balance-sheet should be printed and circulated among the committee before the annual meeting of the Association in January each year. At the conclusion of the committee meeting, the public were admitted. Among others present were, Mr. G. P. Cartland, Mr. Darby, Mr. Sevenoaks, Mr. W. Carter, Rev. R. Errington (Hon. Sec.), Mr. A. D. Woodley (expert), Mr. W. Woodley, Mrs. Curry, Messrs. Gower, G. and H. Willis, J. Smith, D. Smith, R. Brown, and others. Mr. Sevenoaks exhibited some appliances, and Mr. A. D. Woodley introduced a very neat metal section case. The section slips into the case, the bottom and sides of which are solid, and then the top, like that of an ordinary tin canister, fits on, and the thing is complete. They are painted in four colours, and when stained in any way can be washed.

Miss Goring very kindly presided at the refreshment stall, and in the course of the evening Mr. Woodley gave an address on 'The Relation of Bees to Fowers.' The company separated about 10 p.m.

LECTURE ON BEE-KEEPING.—An interesting lecture on 'Bees and Bee-keeping' was delivered on the 12th inst., in the School-room, Badsworth, Yorkshire, by Mr. R. A. H. Grimshaw, of Horsforth, Co-Secretary of the Yorkshire B. K. A. The chair was taken by Lieut.-Colonel Ramsden, of Rogerthorpe Manor, who introduced the lecturer to an appreciative audience. The usual diagrams, frames, sections, combs, &c., were exhibited and explained, but the chief aim of the lecturer was directed to the great advantages of the frame-hive over the old dome-shaped skep (all the bee-keepers present, we may remark, were skeppists), and the almost national necessity there was of farmers availing themselves of every opportunity to eke out their incomes in these times of agricultural depression and competition. It was argued that if bees did not yield us one drop of honey it would still, indirectly, well pay the agriculturalist and fruit-farmer to keep bees in such a rich pastoral district, because of their services in fertilising and cross-fertilising the clovers and fruit trees. Mr. Grimshaw strongly urged his hearers to form themselves into a village bee-club or branch association, fixing their subscription at, say, 2*s.* 6*d.* each per annum, out of which they should buy a hive of Association Standard size from which they could take a pattern if they desired to make their own. Frames could be bought cheaper and truer than they could be made, and should, at all hazards, be of a uniform size in each apiary or bee-garden; indeed, if they were to form a society, they should keep one uniform size in the whole district if possible, for lending, giving, and selling facilities. This hive could be offered as a prize to their own members at the local show. He also recommended them to subscribe 5*s.* 5*d.* per half-year for the *British Bee Journal*, which could be passed round for reading among the members. They should, besides, send up for a copy of *Modern Bee-keeping*, which could he read aloud—a chapter at a time—at their monthly meetings, to be followed by discussion. From the enthusiasm of Mr. Tyne, the schoolmaster at Badsworth, and others, it is very probable these suggestions will be at once carried out.—Great credit and praise are due to Lieut.-Colonel Ramsden, for the large-heartedness and public spirit he has shown in his efforts to benefit those near him by arousing the desire to 'go in' more for the scientific, or modern aspect of bee-keeping. The usual votes of thanks were passed and truly acknowledged.

LECTURE ON THE HONEY BEE.—On Wednesday evening, April 14, at the Biological Room in the Yorkshire College, under the presidency of Mr. H. Bendelack Hewetson, M.R.C.S., a lecture was delivered by Mr. G. H. L. Rickards, M.R.C.S., on 'The Honey Bee and Bee-keeping,' before the Leeds Naturalists' Club and Scientific Association. After describing in popular language the life-history of the bee, and the internal economy of the hive, the lecturer explained the modern appliances for bee-keeping, illustrating this portion of his remarks by reference to a large collection of hives and other implements which had been kindly lent by Mr. W. Dixon of Beckett Street. The lecture was listened to with the greatest interest by a large number of the members and their friends, and at the conclusion several questions were asked, and replied to by the lecturer.

EMBALMED IN HONEY.—'When he dies (the Hpoongee or Buddhist priest) he is embalmed in honey six months; then in great pomp and state his body is burned. The honey is sold, and by some is much esteemed for its supposed healing properties. It is said to find its way into the bazaar market, and European officers who will eat Burman honey are not to be found.' (Extract from a letter of an officer from Burmah in the *Irish Times* of April 9th, 1887.)—Moral (for the British public): Don't eat Burman honey.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Upper St. Martin's Lane, London, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *King's Langley, Herts (see 2nd page of Advertisements).*

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

OUR HONEY IMPORTS.

The value of honey imported into the United Kingdom during the month of March, 1887, amounted to 1114*l.*

Particulars of the QUANTITIES *of honey imported into the United Kingdom during* 1886 *and whence.*

	Cwts.
France	994
Portugal	560
Australasia	332
Canada	426
United States	4569
British West India Islands	1354
Spanish ,, ,, ...	5272
Chile	7352
Argentine Republic	284
All other Countries	406
	21,549

[From Returns furnished by the Statistical Department H. M. Customs to E. H. Bellairs, Wingfield House, near Christchurch.]

'MEL SAPIT OMNIA.'

[917.] I am glad to have an opportunity of acknowledging the debt that I, in common with the readers of the *B.B.J.*, owe to the writer of 'Useful Hints' for his most interesting dissection of the now notorious word 'apifuge.' It is well for us all (considering the countless number of new words that are necessarily introduced into our language from day to day) that those who coin or introduce them should be subjected to the searching criticism which the author of 'apifuge' has encountered in your columns. When, however, he is accused of 'promulgating or propagating a macaronic solecism,' in inventing another term (Galactofuge) which is rightly called 'an etymological monster,' I should think he must have felt as guilty as if he had committed the seven deadly sins all at one time. How many of your readers could explain the meaning of a 'macaronic solecism?' Who would not be nervous if such an epithet were hurled at his head? The expression is a perfectly correct and proper one, but I suspect that it puzzled most of those who noticed it, and I confess that I was glad to have the 'Imperial' at my side to test its accuracy. The author of this overwhelming epithet has evidently been engaging in the word-competitions that have been so popular of late.

My chief object, however, in writing to you is to inquire the meaning which is intended to be attached to the words which appear so often in your columns, '*Mel sapit omnia.*' I have always thought the expression a doubtful one, but I should like to know the meaning intended to be attached. '*Sapere,*' connected with the Greek σαφής, first of all means 'to taste,' or 'to have a taste or flavour of' a thing, so that '*Mel sapit omnia*' must be explained, 'Honey has a taste of everything.' But does it taste of everything? Some amusing passages might be quoted where the word is used in the sense of to smell of, but the expression cannot be intended to mean 'honey smells of everything.' The chief and ordinary meaning of the word *sapere,* as used in countless passages by a wide range of authors, is 'to be wise, sensible, discreet,' and not a few of your readers will at once recall the line which every student of Horace must remember, typical as it is of 'the poet of middle-aged men,' '*Dulce est desipere in loco*'—'Sweet it is to lay aside one's wisdom at the fitting place and time.'

It is evident that the author of the phrase does not use '*sapit*' in the ordinary or neuter sense, so that we must continue our search for the proper meaning. Sometimes the word is used in the sense of 'to know,' 'to understand' a thing, as in a passage quoted by Cicero, and worthy, I think, of quotation in your columns: '*Qui sibi semitam non sapiunt, alteri viam monstrant*'—'Those who know of no by-path for themselves are showing the road to the other.' And a passage from the Epistles of Horace may also be quoted:—

'Quum tu . . .
Nil parvum sapias et adhuc sublimia cures.'

'When (or while) you have no taste for anything trivial, and still care only for lofty themes.'

Thus, then, I am at a loss to comprehend the meaning of the expression as used in your columns '*Mel sapit omnia.*' It cannot be 'Honey knows or understands everything.' I suspect the writer intends it to convey the meaning 'Honey gives wisdom to everything,' a meaning that it cannot for a moment bear. There is a passage in the Vulgate (St. Matt. xvi. 23, St. Mark, viii. 33) in which the words occur '*Tu non sapis ea quæ Dei sunt*'—'Thou savourest not' (R.V., 'mindest not') 'the things that be of God.' This quotation, however, does not help us in any way. We come back then to the meaning, the only meaning which I think the words can bear, 'Honey has a taste or flavour of everything;' and such a sense seems to me simply to approach the absurd. Others, however, may take a different view, and I trust some further light may be thrown on an expression which appears to have been accepted as correct for a considerable time.—OXONIENSIS.

EXPERTS' VISITS.

[918.] May I ask you for advice or arguments, more conclusive than my inexperience can as yet furnish me with, wherewith I can combat the strange antipathy some of our bee-keepers show to the bare mention of the proposed experts' visit?

I have no wish to force such a visit on them, but when my duty leads me to go the round of our members and take down the names of those anxious to gain more experience by such means, or of those who are proud to let the expert see what progress they have made from year to year, I am here and there nonplussed by an unexpected answer such as this: 'No, thank you; no expert's visit for me. I don't hold with that constant pulling about of one's hives, chilling of brood, and bringing foul brood about. Foul brood was never heard of before these new-fangled frame-hives came into use; there is no such thing ever known in straw skeps.'

How far can it be proved whether foul brood did or did not exist in former times? Surely it may have done so, but was simply never taken notice of, and in most cases probably burnt out by the old-fashioned custom of killing off all but the best and strongest stocks.

If this question has already been well thrashed out in your *Journal,* I beg you will kindly excuse my repeating it, for though I have read it diligently for about a year, I find myself as greatly puzzled this season as I was last to give an answer to these same members.—L. S.

[Foul brood, though not so called, has existed from remote times, many apiaries having been depopulated by its inroads. It has, we believe, been more common in modern

days, but we have at the present day more means of eradicating it. We are afraid that experts are not so careful as they ought to be. In visiting apiaries infected with foul brood, they cannot be too careful in washing their hands and cleansing all the appliances they have had in use. —Ed.]

IN REPLY TO NOTICES IN *B. B. J.* OF APRIL 14.

[919.] *Echinops Sphærocephalus.*—We had a specimen of this on our Wilts 'Trophy' at the South Kensington Bee Show last summer. During the whole time it was daily visited by a small humble bee (*only one*) about 10 a.m. He was very punctual, and was seldom seen again the same day; he came again when we were packing up, and hovered about for some time searching for it in vain.

Birds eating Bees (906).—Some twenty-five years ago, I watched a blue-tit (early in the year) tapping at a hive door. He snapped up the first bee that came out, carried it off to a post, held it down with his claw, pecked at it, ate it, and returned for another; this went on for nearly half-an-hour. On examining the post, I found seventeen bee-stings which he had left. So I am convinced that *some* blue-tits, at all events, eat live bees. I can say the same of swallows and sparrows, both of which every year I watch flying over and round my hives (especially when approaching showers cause the bees to hurry home), and *unmistakably* catching them as they fly.

Reply to C. Shufflebotham (912).—During the swarming season, I usually keep a bucket of water and powerful garden syringe near my hives, if a swarm seems inclined to go off my own premises, I throw a jet of water into the air so that the falling spray may sprinkle them, which causes them to settle very quickly. I believe this is a very old, but effectual dodge.—W. E. Burkitt.

THOUGHTS ON CURRENT TOPICS.

[920.] Foreign Bees.—Thanks, 'Amateur Expert.' I said nothing against the gentleness of Carniolan bees, I took that to be pretty generally known; and as to timid bee-keepers, they never entered my mind when I penned my letter against the indiscriminate introduction of foreign bees to the annihilation of the British bee. Of course bee-keepers must have their 'fads,' and possibly Carniolan bees in a good district in the sunny south may gather enough to keep them through the winter; therefore, if 'Amateur Expert' has the happiness to live in that favoured portion of our island, I say by all means recommend these bees, but to those who unfortunately have to exist in what is proverbially known as the coldest part of this country—the eastern side of Yorkshire—I say, keep to the British bee, which is indigenous to the country, has withstood all the vicissitudes of our treacherous climate for countless generations, and is, therefore, the survival of the fittest in the struggle for existence.

Croaking Queens.—I gather from Mr. Grimshaw's letter that he does not believe that queens 'croak,' but attributes the sound to 'a drone striking its wings against the hard shining under-surface of American cloth.' Well, now, that may be a solution of his case, but it does not satisfy me, for I have heard the noise, an unmistakably loud croak, frequently in my hives, not often twice in the same hive, but always under similar conditions, viz., when manipulating with smoke and when the bees were pretty much subdued, and this in hives where no American cloth was used and when there were no drones in the hive; every one knows the peculiar cry of distress of a bee when caught between the quilt and a frame, in closing up the hive: but the croak I have heard has sounded sometimes deep down in the centre of the hive. I believe it to be the queen because I never heard the noise made by more than one bee in each hive at a time.

Pea-Flour.—I find the best way of giving bees pea-flour is to purchase, for 6*d.*, from the grocers, an empty sugar-cask, with one end knocked out, then to drive a stake into the ground and fasten the cask horizontally on to it with the open end having a southern aspect. Now put into it a tray or shallow box, in which place the pea-meal and put a few branches inside on which the bees can climb to rub and clean themselves and transfer the flour to their pollen-baskets. The advantages of this method are that a sudden shower of rain cannot spoil the flour, as it does if given in the open; the bees are sheltered from rough winds, mice cannot climb up into it, as they will into almost anything to get pea-meal, of which they appear to be very fond; and, lastly, should the weather suddenly become very cold and the bees be unable to get out to the meal, it will be there for them when it changes.

Water.—Bees *must* have water in the spring. I give it them by filling those large earthenware covers used for skeps and placing them on a sunny, sheltered border. I then sift out the 'dust' of what is called 'cork-dust' and lay a good stratum of these cork chips on the water, which they absorb and form a floating scum, whereon the bees alight and drink in security.

Smokers.—'T. I. N.' has some practical remarks on these, which one wonders manufacturers of them have not discovered before. I can fully corroborate him in regard to the uselessness of a valve; mine broke, so I blocked up the hole and used it all last year without one, and it seemed to go much better.

Drones.—I am quite of Mr. Howard's opinion that we ought not to exclude drones from hives, having practically solved that point to my own entire satisfaction. I will cite a case or two. Having a hive that usually lay dormant a long time in the spring, but which when it did start generally outstripped most of the others, I thought it would be well to have plenty of drones in it to fertilise young queens, so introduced two full sheets of drone-comb into the centre of the cluster, besides which it had already its own ordinary quantity along the bottoms and edges of the other combs. The result was that it abounded with drones all the summer, but *it gave the greatest weight of honey* in the whole lot. Last year I again let it have all this drone-comb, and again it turned out one of my very best honey-producers. Another hive, driven bees from the same district, had two sheets of drone-comb given it, as I was anxious to perpetuate this strain of bees, which I fetched from the highest and coldest spot on the eastern seaboard of Yorkshire; and this hive also did well, filling and sealing every comb in the doubling box and giving two or three crates of sections besides. Pray let us hear no more about *useless* drones.—F. Boyes, *Beverley.*

CROAKING QUEENS. (897.)

[921.] Mr. Grimshaw, on page 152, draws my attention to a slight slip of the pen in my communication upon this subject, inserted in your issue of March 10th. The expression used by your correspondent was, 'We recognise the contented boom (or hum?) of the quiet, prosperous hive in opposition to the sharp "poop! poop!" of the lost queenless *bee.*' For 'bee' I substituted 'hive,' as indeed I remarked, it appeared to be an error, possibly a printer's.

I am obliged to Mr. Grimshaw for the correction. It enables me to recognise the sharp 'poop! poop!' he speaks of, which, under the circumstances he mentions, I have many times heard uttered. But this is a very different sound from the croak, ruttle, or drum-roll I attribute to the queen. The latter sound is quite an octave lower, far more rapid in succession, and even to

be differentiated from the croaking noise referred to by him, and pointed out by me in my first communication, viz., that produced by the wings of a bee when fixed between the quilt and a frame top-bar, and which ceases, as I then observed, upon the release of the bee.—EDWARD C. ANDERSON, *Lydgate House, Wolsingham, April 12th.*

BEE-WAY SECTIONS.

[922.] *Apropos* of four bee-way sections and slotted dividers, I think it would add greatly to the usefulness of both if the slots were divided into two. The division in the bee-space of the section coming against the division in the slot of the divider would then prevent the latter from warping, which, in its present condition, it will be certain to do. With four bee-way sections now in use the same result may be obtained by driving a small wire point into each side of the section. Of course the tops and bottoms of both sections and dividers will remain the same as at present. I enclose drawings to explain my meaning.—W. H. DOLAN, *Loose, Maidstone.*

FRAMES AND SECTIONS.

[923.] Rather mean to say, 'An axe to grind,' and that motives other than interest in what is practical should be imputed. I might retort that same purpose, adding that while I turn and grind *alone*, the many worthy ones named are turning the stone, while Mr. Lee grinds the axe of another in his own interest. Nor should Mr. Lee be too confident I have not seen his productions. Now, friend Lee, your *application* of the 'bastard dovetail' to the standard frame is of merit; but this *application* alone is all you can claim as original to your frame and section. Saws vertical, and running at the degree of angle desired, cut both groove and tennon,—your work testifying the same; and such is a joint of 'ancient days,' but of later days produced in many a joiner's workshop as described. To proceed. As honey-production in general is the main object in bee-keeping, I am surprised my query *re* drones is answered as it is. To the practial apiarian the question gave its own answer, and in frames it was not a question of drone production, but the uses of a frame and foundation *compelling in the right direction*—not all drone-cells, nor quite all worker either. I am much obliged for the information; it is 'ancient history' that *foundation* and built comb have been cut for given purposes by the bee-master.

Again, defending the wrong principle of guiding the bottom of foundation with a split bottom rail, by bringing the merits (?) claimed for inversion to the rescue, is merely proving this bottom rail guide to bar-frames of theory only, nor does it add to the merit of its principle by quoting me; that which I wrote as an illustration showing how useless it was to work for comb-crammed brood frames, and Mr. Lee might have been sufficiently charitable to quote *this is useless work*. Now foundation held *only* between a split top bar, in either frame or section, may stand a test without the hive; but within! the precaution of molten wax, or a couple of brads, may not be great loss of time in adding after all, nor expense either. In practical test the principle has been tried and found wanting, nor would I ever risk wood and foundation alone within the hive.

If Mr. Lee will defend his frame and section by actual apiary work and experience, not forgetting that split rails, glass rails, and projecting ends for bee-spaces are not quite 'ancient,' but fast becoming so, we may both get out of the 'shop' into the apiary, and there discuss bee spaces, *completing*, *clustering* (?), the merits (?) of inversion, right way up, and the right way to bear no ill impression of any man.—JOHN H. HOWARD.

FEEDING WITHOUT FEEDERS.

[924.] Now that the time for spring stimulation has come round, a suggestion as to a very cheap and simple method of feeding, which dispenses with all appliances and preparation, may prove acceptable to bee-keepers. It is to take an empty comb, and, laying it flat on a table, place a heap of moist sugar* on it. Spread this with a knife or with your hand, so as to fill the cells on one side, taking care not to bruise or cut the comb. There is no need for ramming the sugar down into a hard, solid mass, as filling the cells up level is all that is wanted. If the bees have any difficulty in liquefying the sugar, the comb can be well sprinkled with water, either before or after filling; I think *before* would be preferable. The reason for filling only one side of the comb is that, while filling the other side, a quantity of sugar would fall out again from the side previously filled, and it is also unnecessary, for as many combs as desired could be so stored and given to a hive.

Before returning the comb to the hive, brush or shake off all loose surplus, so as to avoid its falling on the floor-board, and thus being wasted. Place the sugared combs in the hives towards the outside of the nest, but inside the division-boards, with the full side towards the cluster, as the bees always prefer to have the empty face of a comb outwards. I think one standard frame so filled will last a breeding hive for about a week, but am not quite certain as to the exact time. I think, too, that this way of feeding will be found to cause little, if any, more excitement than uncapping sealed honey, and that as the sugar is already stored in the combs, the bees do not trouble to remove it to another part of the hive, but use it as required, consuming it in preference to breaking into their stores of sealed honey. I cannot vouch for the perfect accuracy of this view of the bees' proceedings, as I have not observed them closely enough for this; but I can say that I am now using this method, and find it to answer satisfactorily. It is very similar to the method advocated by Mr. Simmins, but dispenses with the dummy as an unnecessary expense; herein I think is the only difference in the bee-keepers' method of proceeding.

How this method would answer for autumn and winter feeding I cannot say, as I have only tried it this spring, but should think it would do, providing the hive was kept reasonably dry, so as to prevent the sugar from absorbing too much moisture, and so flooding the hive with syrup. For this purpose, I should propose filling only the upper portion and ends of the central combs, or turning their sugared face towards the hive walls; the outer combs being arranged as before mentioned.—STUDENT.

STEWARTON HIVES.

[925.] Several new designs in hives have been given lately, so I think I will also give mine, and ask public opinion on it, if you will favour me. To begin with, I secede from the bar-framist, because my experience has, so far, taught me that I can succeed just as well without them. My Stewartons are just as strong, if properly managed, as my bar-frame hives, and they give me just as much honey, but not in so saleable a form. Also, the Stewartons, owing to their thin sides, require an outer case. The frame-hives take a lot more work for the same results, and are clumsy to take to the heather. I have tried to remedy some of these defects in my new hive. I have not made it specially invertible, because it is only with deep frames that inverting is required. With shallow frames we can transpose, which is far better. The body-boxes are six inches deep, and fourteen inches in diameter inside, and fitted with nine or ten fixed bars. The sides are a full three-quarters of an inch thick, and have a peculiar arrangement to prevent wet

* I use white at 1½*d.* per lb., and find it answer very well.

getting in at joints. Either section-boxes or extracting-supers may be used above, all having this joint For my own part, I work only for sections. It would be interesting if Mr. Cowan would say what the difference between working his Stewartons and bar-frame hives is. I mean in building up in spring. Which get strong quickest, and with what attention? I think this hive would do well for cottagers and others, who never make a good job with moveable frames. Not that I have had any experience with this hive, or intend to go in largely with it. My idea is to try and get sections as easily as possible. The cover for above hive is the same as Mr. Simmins's, and a very good form I find it, and not very difficult to make.—GGORGE D. CLARK, *Kirklandhill, Dunbar.*

[The arrangement alluded to for keeping out the wet consists in having a V groove on the bottom edges of the hive-sides, and bevelling off towards the outside the top edge. Our frame-hives are always the forwardest, and are ready for honey-gathering first, but they have an advantage in the moveable combs which enable us to assist them more than we can the others, and therefore they are much quicker in building up in spring.—ED.]

THE NEW RACES OF FOREIGN BEES.

[926.] I did not intend writing any more on this subject, but I see Mr. Simmins, in an addendum to his article on Carniolans, does me the honour of making some remarks on my letter.

He first says he has given an *impartial* opinion on the different varieties of foreign bees—of course I do not for a moment doubt him when he says so, but a naughty little bird in flying across my garden whispered that his very glowing articles on these bees, appearing simultaneously with his full-page advertisement directing people where to go to get them, may possibly create in some refractory minds the very smallest semblance of a doubt on this point. I should be sorry if it did, and had I had my gun I should certainly have shot that naughty little bird for its impudence. Since then a neighbour informs me that he heard it whispering in his garden that it believed Mr. Simmins had made an omission when he stated it was 'unreasonable to expect to hear the last of these bees before the *beginning* was told,' and that he ought to have said *his beginning*, for, continued the little bird, have we not had our Cowan's and our Raynor's, and many others' opinions years ago?' That little bird is becoming incorrigible, and I shall certainly make it my duty to shoot it the first chance I have.

When Mr. Simmins writes, 'I may presently have some things to tell of English bees that the same correspondent (myself, readers) had not even dreamed about nor imagined,' I must tell him I shall be delighted to learn these things, if they are worth knowing, about our British bees—not 'English,' please, that would be too selfish a definition—but he must be careful what he states about me, I am a very queer man, and have dreamt some very funny things at one time and another; and as to my imagination, it, probably, I fear, doesn't soar so high in regard to foreign bees as his own, yet it is not given either to him or any one to define its limits on British bees or anything else. He continues, 'We do not certainly call a brown horse black, but why does he' (I) 'call a black bee brown? I consider my own eyesight to be as good as any, but I have yet to see the *brown* bee spoken of by himself as the British bee.' I certainly did not expect to see this from Mr. Simmins, whose writings are generally so practical, particularly in regard to the management and manipulations of the hive, and I can only account for it by supposing that he either meant this as a joke or he is totally colour-blind, for surely no one with the smallest knowledge of colours will call our native bee 'black.' I spoke of our native brown bees as 'British,' for do we not all know that every animal, whether beast, bird, or insect, which breeds naturally in this country is called 'British?'—F. BOYES, *Beverley.*

BEE-FLOWERS.

[927.] A valuable shrub for bees, which I think has not been mentioned in the *Journal* is the Tree Box (*Buxus arborescens*) and is worthy to be noticed as a fitting companion to that beautiful ornamental shrub *Berberis Darwini*. Both are excellent for bees, but the tree box, coming into bloom some time before the latter, is, I think, the more valuable. It has been in flower here for more than a week, and has been crowded with bees all day long, whenever the weather would permit them to get to it.—F. BOYES, *Beverley, April 18th.*

NOTES BY WOODLEIGH.

[928.] SEPARATORS.—May I ask if it was the fault of your engraver that the feet of the separators were not shown in the engraving some weeks ago in your columns, or did 'A. E.' intend the strips or small fillets nailed on the inside of sides of crate to take the place of feet and carry the separators between them? I have been in communication with bee-keepers on the same subject.

I have always used thin sheet zinc for separators and cannot see any objection to its use as such. Something has been said about using perforated zinc for separators. I cannot see any advantage there can be in the perforated over the plain, in fact I think there would be a great disadvantage in giving the bees peep-holes at each other while busy at work (it would lead to needless gossiping). Then another asks if excluder zinc will do for separators. I have not used it for such a purpose. Can anyone that has enlighten us as to the plain or corrugated surface of the sealed sections when it has been used?

PEA-FLOUR.—I find Symington's patent pea-flour the best for artificial pollen, or Brown and Polson's corn-flour and the pea-flour mixed; the bees take it with avidity and it is a great saving of bee life. The above flours are both impalpable powders and easily worked up by the bees.

PROPOLISATION.—If the wood bearings for frames are lubricated with black lead, no propolisation will take place and no obnoxious emanations will exude from it as from tallow.

POROUS QUILTS.—Our theories and practice change almost as quickly as the seasons or the fashions. How short a time ago—*vide* previous vols. of *B.B.J.*—leading bee-keepers were advocating porous quilts and covers, now it is impervious American cloth and a resinous composition for hive interiors. *Mutatis, &c.*

FOUNDATION.—Wanted, some inventors to turn their inventive genius on super foundation-making, and give us a foundation that leaves no thicker midrib when worked out than the bees do in the natural comb, also a good tough strong foundation that will not sag, or break out in the extractor. Could not some textile base be used after the method of Abbott's wooden base foundation? What kind of foundation do our Canadian friends use?

A VARNISH for hives warranted to fill cracks if used as directed. Take two gallons of gas tar, boil for four hours, take from over the fire, add by stirring half a gallon of turpentine, then boil again for half an hour or so, and apply while still hot.

WASPS.—The erratic specimen of wasp (?) (813) that deposited the caterpillar in the crevice was not the *Vespa vulgaris*, but a smaller kind of solitary insect, closely allied to the *V. v.* in shape and colour, but very different in its habits and actions. I had three of the same kind of insects under observation last summer and I am looking forward to the sequel this coming season.

The bee noticed by Harold Adcock visiting the bobbin

was not the honey-bee, but the solitary bee that generally builds its nest in a small hole in mud walls, &c., and a very wonderful provision of nature in connexion with this kind of bee is that it prepares its nest, then deposits an egg, inserts some food, then another wad of pieces of leaves, then another egg and more food, and so on, yet the last egg deposited, perhaps four or five days after the first, developes and arrives at maturity first.

INVERTIBLE HIVE.—I think the *patent* invertible hive of the Jones-Heddon type must be getting rather shaky after the rough handling it has received from British bee-keepers, considering how slight the material was from which it was constructed, and I shall not be surprised if it follows in the wake of a large majority of its predecessors, whose only chronicle of existence is the archives of the Patent Office. Our thanks are due to Mr. Hooker for the trouble he has taken in enumerating the number of American hives that have been patented. One would judge by results that the Patent Office gets the lion's share of the profits. I should expect, from the advice given to cottagers to invest in cheap Yankee invertible hives by 'Devonshire Dumpling,' that D. D. must of necessity be a townsman who does not know anything of the capabilities of cottage bee-keepers, who has never had opportunities of mixing with them, or knowing how difficult it is to induce them to adopt the modern system, even with hives that have been worked in their own gardens, but to advise cottager Smith to buy a Jones hive, and then tell him that his neighbour Robinson had one last season, and that when his bees had worked out and built the comb to the top bar Robinson turned his hive 'topsy-turvy' for the bees to build the comb to the bottom bar, why, my dear D. D., he would consider you were the inventor escaped from Colney Hatch.—WOODLEIGH.

QUERIES BY A BEGINNER.

Now, Mr. Editor, please answer these
Few simple inquiries about my bees.

Suppose it's winter time, with a deep snow,
And a bright sunshine sends light from below,

Tempting the bees to fly forth from their doors,
What is the remedy? Suppose it pours,

And the wet penetrates clean through the roofs,
Are outside plinths all wrong? What are your proofs?

Suppose, when spring has come, robbing is rife,
Would it be well to stand by with a knife

And kill the robber bees? If a queen dies
Is it a matter to cause much surprise?

Should tomtits kill the bees, fat toads, or mice?
Dear Mr. Editor, what's your advice?

If wax-moths eat the comb what is the cure?
Will chalk lines keep off ants? are you *quite* sure?

As for the moths and ants, why don't the bees
Tackle such feeble foes as these with ease?

Should hives have legs or not? square legs or round?
Are they not steadier down on the ground?

How many stings shall I have to endure
Before I cease to swell? fifty, or more?

What's the subscription I should have to pay
To join as a member the B. B. K. A.?

What are the benefits I should derive?
Would some one teach me to manage a hive?

And, Mr. Editor, one question more,
Which you've not answered yet, am I a bore?

ROBERT S. ROUTH.

Will some kind friend, by pen or mouth,
Give full replies to Mr. Routh?

Queries.

Our readers will greatly oblige us by answering, as far as their knowledge and observations permit, the Correspondents who seek assistance. Answers should always bear the number and title placed against the query replied to. Any queries unanswered in this way will be answered by the Editor and others.

[929.] Can any reader of the *British Bee Journal* inform me whether foul brood is known to exist anywhere near Ettington, a village six miles from Stratford-on-Avon, Warwickshire? I have been offered some skeps as a gift, but would not take them if this disease is common in the locality.—E. J. GIBBINS, *Neath, April 13th*, 1887.

Echoes from the Hives.

East Yorkshire.—Since my last report we have had very variable weather, cold frosty nights and snow, as well as a great storm which could not let my hives alone, but blew the tops off two of them, and sent all the coverings into the next parish. As I did not go down until the following evening I fear these two lots have got a nasty chill to their brood. Now we are having a rather long spell of harsh, icy, north-east winds, with strong sunshine, but, being dry, not altogether unfavourable for bees. My own were never looking so forward and well, breeding going on extensively all round; every hive (fifty-eight) in good condition, with fertile queens, all carrying in pollen and water daily. I find 1 lb. of peaflour last them nearly an hour to carry in, and 4 or 5 lbs. per day would not satisfy them, so eager are they for it, showing how largely breeding is going on. At night some of the hives, cold as the weather is, are humming as if it were May, with perspiration issuing from the entrances. I saw the first drone yesterday, April 10th. —F. BOYES.

Muskham.—The weather here has been very severe for the last eight or nine weeks, and there are no signs of a change. Hardly a day since Christmas have bees been able to get an airing, for the days have been dull and cold with easterly winds and severe night frosts. Numbers of stocks have been lost owing to scantiness of spring stores, the cold having been so protracted. I think there will be few May swarms in Notts, as there are no signs of drones yet. I am glad to be able to say I have not seen nor heard of one case in this neighbourhood of that dreadful disease foul brood. I hope that the coming season may be more favourable than the last, and that bee-keepers may have large crops of honey from their 'Jubilee Bees.'—E. C. WALTON.

NOTICES TO CORRESPONDENTS & INQUIRERS.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

E. J. G.—The sample of sugar received is that which is called in the trade 'pieces.' 'Pieces' are the drainings of sugar refineries, and though made to look very nice, they do not have much of the saccharine element in them. They are a far remove from Porto Rico, and other primitive West Indian sugars. The bees will utilise the sugar, no doubt; but the experience of bee-keepers teaches that that sugar is the best which is most beneficial to the bees; and, therefore, Porto Rico and other like sugars are recommended.

FOREST OF DEAN.—*Superabundance of Stores.*—The bees have consumed the candy in preference to the sealed honey which from your description, is aphidian. We advise you to extract the outside combs—up to the brood-nest—and to return them to the hive. If more food is required, feed slowly on syrup, say in a week's time after extracting. Keep plenty of warm covering over the frames.

W. T. C.—*Clustering Outside.*—The internal heat of the hive, caused by the excitement of the bees during re-

moval, was the reason of the bees hanging from the alighting-board. If you had raised the skep slightly from the floor-board, after placing it in position, there would have been no 'lying out.' It is probable that a little breakage of comb-honey may have occurred during removal which would increase the heat and excitement. There is no cause for alarm. Judge of the quantity of stores by the weight of the skep, and feed if necessary.

D. Matier.—1. *Smoker.*—We scarcely understand what you mean by a 'fumigator.' If you mean for injecting the fumes of salicylic acid into foul-broody hives, we do not think an ordinary smoker could be so used successfully. There are, however, scarcely any limits to the invention of the present age. 2. *Extractor.*—As a general rule, the specific gravity of heather honey is too great for any extractor thoroughly to relieve the combs of it.

R. C.—1. *Changing Hives.*—Transferring colonies to clean hives may be done on any fine day; towards evening when bees have ceased working, is the best time. Let it be done quickly but quietly, removing the central frames of the brood-nest without separating them, and, when all the frames have been transferred, brush out of the old hive on to the top of the frames any bees remaining. The old hive should be displaced by the new one before commencing the operation. 2. *Stimulating.*—Stimulation may now be commenced.

A. E. P.—The pieces of combs sent are not affected by foul brood; but portions of the combs are in a very sad condition, and should be at once melted down.

E. M. L.—The method proposed by you is practicable. The combs being attached to the sides of the hive, the cutting off the tops of the combs will not prejudice the operation. But we would suggest that you should make an artificial swarm by the ordinary method.

H. W. D.—We are not able to distinguish between the eggs and grubs of fertile workers and those of fertilised queens. The fertile worker lays her eggs sporadically, the queen regularly.

C. A. J.—*Many eggs in one cell.*—This frequently happens; but there is nothing to be apprehended from that cause. We should say that your queen is healthy and in good condition.

John Orr.—*Woiblet Embedder.*—We are not aware that Mr. Root has described such a tool. The embedder shown in his book is not used hot as you propose, but is made of a hoop of tin with pieces of tin soldered on at distances of about half an inch to one inch apart and is used cold, the wire being pressed into the body of the wax foundation. One reason for thinking a wheel will work quicker is that when the V groove in one of the teeth is once placed on the wire the Woiblet embedder can be run along it without removal, whereas the form you suggest being only a segment of a circle to embed a wire 8½ inches long would necessitate its removal several times, as we presume from your sketch you do not propose to make it the length of the wire.

Received from A. F. Hutchings, St. Mary Cray, Kent, his 'Illustrated Price List of Improved Bee-hives and Appliances required in Modern Bee-culture.' Pp. 16. A very useful and compact catalogue. Also some samples of sections recently imported from G. B. Lewis & Co., America.

Received from Mr. A. D. Woodley, 26 Donnington Road, Reading, Expert of the Berks B.K.A., some samples of a new style of section case. These are made of tin and glass, with a tight-fitting lid which keeps the whole compact. With glass in front and back they are well suited for purposes of exhibition. We consider them to be superior to the ordinary cardboard cases, which are easily damaged by any leakage of honey; but Mr. Woodley's cases can easily be washed and used again. They are durable, cleanly, and neat. They were exhibited at the meeting of the Windsor Branch of the Berks B.K.A. and much appreciated by those present on that occasion.

We have a small quantity of surplus seeds of the *Echinops sphærocephalus*, or Chapman's Honey Plant, which we should be pleased to distribute amongst bee-keepers who would take an interest in its cultivation. Apply to Editor.

Show Announcements.

June 23, 24.—Suffolk Agricultural Show at Bury St. Edmunds. Entries close June 16. J. Huckle, Secretary.

July 11-15.—Royal Agricultural Show at Newcastle-on-Tyne. Entries close May 12. J. Huckle, Kings Langley.

July 20-22.—Lincolnshire Agricultural Society at Spalding. Entries close July 4. R. R. Godfrey, *Secretary.*

July 26, 27.—Warwick Agricultural Society at Sutton Coldfield. J. N. Bower, Knowle, Secretary.

July 27.—Bishops Waltham Show. (Hants and Isle of Wight Association). H. W. West, Hon. Sec., Swanmore House, Bishops Waltham.

August 3-5.—Yorkshire Agricultural Society at York. Secretary, H. L. Rickards, Poole, near Leeds.

Business Directory.

For the use of Manufacturers and Purchasers of Bee-keeping Appliances.

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Appleton, H. M., 256A Hotwell Road, Bristol.
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Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
British Bee-keepers' Stores, 23 Cornhill, E.C.
Burtt, E. J., Stroud Road, Gloucester.
Edey & Son, St. Neots.
Howard, J. H., Holme, Peterborough.
Hutchings, A. F., St. Mary Cray, Kent.
Meadham, M., Huntington, Hereford.
Meadows, W. P., Syston, Leicester.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
Stothard, G., Welwyn, Herts.
Webster, W. B., Wokingham.
Wren & Son, 139 High Street, Lowestoft.

HONEY MERCHANTS.

Abbott Bros., Southall, London, and Merchants' Quay, Dublin.
Baker, W. B., Muskham, Newark.
Baldwin, S. J., Bromley, Kent.
British Bee-keepers' Stores, 23 Cornhill, E.C.
British Honey Co., Limited, 17 King William St., Strand.
Howard, J. H., Holme, Peterborough.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.

FOREIGN BEES AND QUEENS.

Abbott Bros., Southall, London, and Merchants' Quay, Dublin
Baker, W. B., Muskham, Newark.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
Benton, F., Munich, Germany.
Howard, J. H., Holme, Peterborough.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
Simmins, S., Rottingdean, near Brighton.

METAL ENDS.

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British Bee-keepers' Stores, 23 Cornhill, E.C.
Lyon, F., 94 Harleyford Road, London, S.E.
Meadows, W. P., Syston, Leicester.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.

COMB FOUNDATION.

Abbott Bros., Southall, London, and Merchants' Quay, Dublin.
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Blow, T. B., Welwyn, Herts.
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☞ My Queens are all very prolific, long-lived, and much larger-bodied, than the majority of those supplied by others, as they are reared naturally, under the swarming impulse, in April, May, and June, from the strongest of my forty colonies of Bees kept in double-walled moveable frame-hives, and all having choice Queens, which produce workers so gentle that they can be handled without smoke, and even without a veil on the face, just as I do myself (see Mr. S. Simmins' statements on page 37 of his work entitled, *A New Era in Modern Bee-keeping*). This is principally owing to the fact that I have weeded out from my Apiary all such Queens which appeared to be weak or producing troublesome workers. Address—

M. G. DERVISHIAN, Larnaca, CYPRUS. A 2375

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Sectional view of New Patent Bee Feeder.

Simple, Safe, Clean!

Unrivalled for Summer Feeding. No excitement. No robbing.

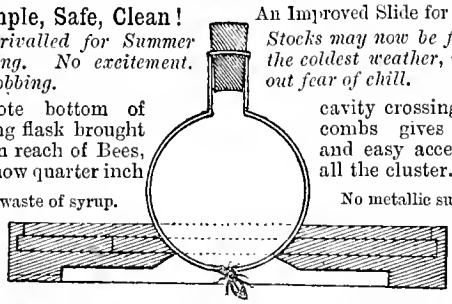
An Improved Slide for 1887.

Stocks may now be fed in the coldest weather, without fear of chill.

Note bottom of feeding flask brought within reach of Bees, also how quarter inch cavity crossing the combs gives safe and easy access to all the cluster.

No waste of syrup.

No metallic surface.



See Advt. next week. *Price* 1*s.* 6*d. each, complete.*

Send P.O.O. to Patentee, J. P. HOPKINS, Milverton, Somerset.

JOY HIVES from **4/6**; SUPERS, **2/-**; COMB FOUNDATION, **1/9**; SUPER ditto, **2/8**. Cheaper for quantities over 3 lbs. SECTIONS, **2/6** 100; Double Royal FEEDER, post free, **2/6**; SMOKERS, **2/9**; FRAMES in Flat, require no Nails or Glue, **1/-** doz.; Duncan's Granulated SUGAR for Feeding, 7 lb. bag, **1/7**; PORTO RICO, ditto, 7 lb. bag, **1/1**. Cheaper in larger quantities. Borage Plants, **8d.** 100, post free. Strong MAY Swarms, **10/6**. Order early. Catalogue sent for ½ stamp. Address **ALFRED JOY,** (170)
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STANDARD BROAD SHOULDER FRAMES, with Saw Cut, **1/8** per dozen. Frames with Patent Metal Ends, complete, **1/6** per doz. Also Cheap **SHALLOW** Frames. All are made of best Pine, accurately Cut, and well Planed. Send Three Stamps for Sample to—

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HOW TO MAKE AN EXTRACTOR, AND A BELLOWS SMOKER.

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IMPROVED British Bee-keepers' BAR-FRAME HIVE, made of One-inch Well-seasoned Wood, Eight Frames, Waxed, Quilt, Walker's Feeder, Excluder Zinc, Floor-board, Waterproof, and Cover. Hive complete, 5*s.* each. Directions for Management, 1*d.* Address ISAAC HALE, Maker, Horncastle. A 2403

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Extracts Four Frames at once, Moveable Strainer to strain the Honey as it comes from the Combs, Treacle Valve, Moveable Lids, and extracts Sections. Price **32s. 6d.**

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THE CHAPMAN HONEY PLANT.

Strong Plants to flower this Season, 7*s.* 6*d.* per 100, 1*s.* per dozen. Free per Parcels Post.

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Six best kinds for Succession, large packets, free, 1*s.* 3*d.* 12 packets, 2*s.*

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LYON'S Patent METAL ENDS.

THE only perfect pattern. The metal being flush with the inside of the Hive side, CANNOT BE FIXED TO IT BY PROPOLIS. All the so-called Improvements CAN.

The Special Alloy used allows them to be LIGHT YET STRONG. One gross weighs 5¼ lbs.

Price for 1887 **5/6** per gross.

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BEE JOURNAL OFFICE, KINGS LANGLEY.

THE BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, St. Martin's Lane, W.C.'

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Editorial, Notices, &c.

BRITISH BEE-KEEPERS' ASSOCIATION.

SUBSCRIPTIONS FOR 1887.

We are desired to remind those Members who have not yet paid their subscriptions for the current year that they will confer a great favour upon the Committee by forwarding the same to the Secretary at the earliest possible date. As the Association becomes more dependent every year upon those who are more intimately acquainted with the bee-keeping industry either as manufacturers of appliances or as bee-keepers, it is hoped that all those so connected will give their support to the Association, and make its aims and objects known as much as possible.

It should be borne in mind that entries for the Royal Agricultural Show, to be held at Newcastle, close on May 12th. Application for schedules of prizes should be made as early as possible.

OUTLINES OF BEE-KEEPING FOR BEGINNERS.

(*Continued from page* 136.)

VI.—BEES REQUIRE A DWELLING TO LIVE IN.

1. The honey-bee does not like dirt, and it differs from ordinary domesticated animals kept in stalls and stables, by itself attending to the cleanliness of its own dwelling. It gets rid of its dejections outside of its residence, and when in health never soils the inside; it ventilates it and constantly renews the air, so that the newly-stored honey does not become contaminated by foul smells or unwholesome surroundings. A stall always has a bad smell, it is, therefore, not right to speak of a *stall* of bees (an expression not at all uncommon in some country districts). The dwellings in which bees live and build their combs are called hives.

2. Wind, wet, and cold, are injurious to bees; the hive must, therefore, be well protected against these. A good hive must be warm, have a good covering, and it must be placed in such a position that the keen north-east and the moist south-west winds do not easily find their way into the entrance-hole.

3. Hives are made of different materials and vary in shape. Those formerly in use were called *skeps*; although these are still found, and are extensively used by villagers, modern bee-keepers have adopted wooden boxes, as in every way preferable.

4. Skeps are usually made of straw, and are generally dome-shaped, or circular with flat tops, having a hole in the crown. They are worked on the swarming principle, and have fixed combs. The modern wooden boxes used for hives have even sides, generally at right angles to each other. In them the combs are moveable, and for this reason they are called *moveable comb-hives*. They offer greater facilities for manipulation than skeps; at the same time they present considerable advantages, and if managed properly, enable the bee-keeper to obtain a very much larger quantity of honey.

5. Besides skeps and moveable comb-hives, there are what are called *Stewarton* hives. These are also of wood and are eight-sided (octagonal). The central combs are moveable, the outer ones being fixed. Stewarton hives are easy of management and give better results than skeps.

6. Wooden hives should be well made by a good carpenter, who is also a bee-keeper and understands the requirements of bees. Accuracy of workmanship is of the greatest importance, and the simpler the construction, the more easily will the hives be manipulated. The wood used must be well seasoned, dry yellow deal or pine free from loose knots and cracks.

VII.—THE COMB STRUCTURE IN A HIVE.

1. When a swarm is placed in a hive the bees constituting it begin to build combs. These are made of wax, which is secreted by the bees and appears in the shape of small, thin, five-sided scales between the rings on the under-side of the worker's abdomen. The wax is produced from the honey consumed by the bees, of which several pounds are required to yield one pound of wax.

2. During comb-building the bees hang quietly in clusters. They work up the wax-scales with their jaws, and, by adding a liquid (*saliva*), they knead the wax into a soft paste. Comb-building is commenced at the top and continued downwards, the central division wall or foundation being always begun first. This forms the basis of the cells, which are placed on each side in such a way that the base of one forms portions of the bases of

three on the opposite side. Two rows of such cells with a central division constitute a *comb*, and from this shape the cells fit so closely together that no room is wasted.

3. The cells are usually six-sided, and are not quite level, having a slight inclination upwards in the direction of the openings.

4. Only well-fed bees can make wax and build combs. When bees are queenless or food is scarce combs are not built.

5. When bees are placed in an empty hive they at first build combs with small cells, called *worker-cells;* later, larger cells are constructed, and these are called *drone cells.* Sometimes the bees change the size of the cells on the same comb, and go from worker to drone, or from drone to worker; they then construct between them irregular-shaped cells, which are called *accommodation*-cells. The change is usually made in from one to six rows; these cells may be of almost any shape, and have sometimes five or seven sides.

6. Cells intended for brood are of two regular sizes; those in which workers are bred are one-fifth of an inch between the sides, and five of them measure one inch. Comb containing such cells is called *worker-comb.* Drones are reared in larger cells a quarter of an inch between the sides, four measuring one inch. Such comb is called *drone-comb.*

7. Brood-combs are of a certain thickness, worker-combs being about seven-eighths of an inch, and drone-combs about one and a quarter inch thick.

8. Both sizes of cells are used for storing honey, and these vary greatly in length. Should these honey cells be afterwards used for brood, they are reduced to the length required.

9. There are sometimes cells of a different shape called *queen-cells.* These are round, resemble somewhat an acorn, are about an inch in length, and one-third of an inch across. They usually hang with their mouths downwards, and are generally found at the edges of the comb.

10. Queen-cells are constructed of a mixture of wax and pollen, making them porous, and are covered with a number of depressions, which give them greater strength. The walls are thick and much material enters into their composition, which, as soon as the queen is hatched, is used elsewhere, the cell being cut down until it resembles a small acorn-cup.

11. The cappings of brood-cells are porous, and consist of a mixture of wax and pollen, those of honey-cells being made of wax only.

12. If the hives are furnished with strips of comb the bees will continue them down, and they will act as guides. Comb may be constructed parallel to the entrance or at right angles to it, the direction being determined by the guides.

(To be continued.)

W. P. MEADOWS' PATENT EXTRACTORS: THE RAYNOR AND THE GUINEA.

At the first Quarterly Meeting of the British Beekeepers' Association for 1886, held in London April 28th, the first of these extractors was shown and a short comment made upon them in the *Journal* of May 6th. After a season's trial we again refer to them.

The principle upon which their merit consists is an outer cage of sheet-metal upon which are fastened strips of metal edgeways to form a rest for the wire mesh necessary for the honey-comb to rest upon. These strips edgeways offer no resistance to outflow of honey, at the same time do not allow of the wire bulging, although the wire-netting used is finer than that used in the old form of extractor.

The way they are made also prevents the splashing of honey. The metal revolving cage receives it and carries it into bottom of cylinder, at the same time effectually stops draughts to comb and chill to brood.

The users of these machines signify their approval of them, and the numerous prizes they gained last summer attest their value.

The principle was originally applied to 'The Raynor,' but Mr. Meadows informs us he has adapted it to his Guinea and Little Wonder, and already has sent out a large number of extractors fitted in this way.

USEFUL HINTS.

Weather.—The month of May, the swarming month, is close upon us, with weather still cold and changeable, and but little forage for the bees. A long and trying winter, truly we have passed through, but genial showers and sunny days will soon bring forth our spring flora, and although the time of honey is not yet patience will assuredly gain its reward at last.

Ready, aye Ready.—Only let us be ready when the influx arrives—ready in bees, ready in all that appertains to the storage of an ample and bounteous supply of the nectar of the gods.

Jubilee Designs in Glass.—In this year of Jubilee, many will be anxious to honour our Queen by wonderful devices wrought in comb-honey; and glasses, with designs in comb-foundation deftly arranged, will, no doubt, be the order of the day, and when skilfully completed by the bees will form a great attraction at our principal shows.

Queen Wasps are showing themselves in numbers

about the hives, and our garden syringe is daily at work. The bloom on the gooseberry bushes is also a great attraction. Our young people succeeded in taking not a few in butterfly nets, and claimed the stipulated 'penny per head.' Wasps in abundance towards autumn are undesirable for more reasons than one; and as a man is known by his companions, such likewise is the case with the bee. When seen with wasps, imbibing the sweet juices of the grape, the peach, and the nectarine, the bee, although comparatively innocent, receives the larger share of blame.

Feed is still our cry. The consumption by populous colonies is now great, and the income at present, in many districts, is small. The finest granulated crystal cane-sugar may be purchased at 2*d.* per lb.; who, then, would let their bees starve? Consider the importance of having the hives full of bees ready for the good time coming, when we may address the apiarist in the words of the poet:—

'Tityre, tu quod, apium somnos suadente susurro,
Ad septum recubas, si placet esto deus.'

A pleasant and god-like occupation, truly.

Syrup may now be given rather thinner in consistency, and, in average weather, a quart weekly will generally suffice to keep a strong colony advancing. Give it warm and at night. Let there be no disturbance of the brood-nest further than to add, in case of necessity, an empty comb on its outside.

This treatment may be continued safely until the middle of May. In earlier districts, with fine weather and fruit trees in bloom, sections, or other supers, will be required on strong colonies.

Swarms.—Natural swarms in May will be 'few and far between.' We are intending to place our first on Lee's frames, and hope, and expect, to obtain perfect combs. Swarms in May are generally small, but with fine weather make splendid colonies, filling their hives with brood before the white clover harvest begins.

Foul Brood.—We have a word of exhortation on this subject for county experts, whose calling and status in the County Associations open to their inspection almost all apiaries. Surely these men should have a thorough knowledge of apiculture in all its branches, or how can they advise others?

We hear mutterings of experts who do not know foul brood when they see it—of others, who never disinfect hands or clothes after manipulating foul-broody hives before proceeding to the next apiary; of foul-brood, which had never existed in a district, following in the wake of the expert. We hear that, in consequence of these reports, many apiaries are closed to the expert. And no wonder. One can scarcely imagine a more fertile means of spreading this dread disease than an expert's visit under such circumstances. There is no disease more contagious, and we have well-authenticated cases of its first appearance shortly after experts' visits. We wish to put this *very strongly* before all experts, who, as a rule, are a most respectable body of men anxious to advance the science of apiculture by all the means at their command.

There certainly ought to be a rule in all County Associations compelling experts, under a penalty, to thoroughly disinfect both hands and clothes after every visit. An outer dress, well saturated with a disinfectant, should be worn during manipulations, and the hands should be repeatedly sprayed with weak carbolic solution, or other disinfectant. An expert should be as careful not to spread foul brood in his district as doctors are to avoid carrying the infection of small-pox or scarlet fever from house to house. If some steps are not taken in this direction 'Othello's occupation will soon be gone.' We are strongly of opinion that this subject demands the careful attention of the General Committee of the central Association, and that it may well be discussed at the quarterly meetings of the county representatives. Until some steps are taken we advise all experts carefully to disinfect after manipulating, no matter whether foul brood be present or absent. A spray disperser, very effective, strongly made and lasting, which can be applied to any ordinary bottle, is the one commonly used by gardeners under the name of 'Cooper's patent protector.' We have had one in use for five years, and it is still as effective as ever. Its cost is about 1*s.* 6*d.* or 2*s.*

Cyprians.—In our former notice of these bees several points were omitted to which we may now shortly refer. The flight of the queens is stronger and more rapid than that of black queens, and they are rarely lost on the mating flight, owing probably to these qualities. Indeed we do not remember losing a single queen on these excursions. These remarks are true also of queens bred from impurely fecundated mothers, which are usually very fine and large. Cyprians raise numerous queen-cells, more than are desirable according to our ideas, and they do not fill sections so well as other races, many of our 1-lb. sections weighing 12 or 13 ounces only, and so strong are their breeding propensities that on one occasion when honey failed, they filled the sections with brood and queen-cells.

Philology.—Our *frater*, 'Oxoniensis,' is shocked at the expression 'macaronic solecism,' and evidently feels for the author of 'apifuge' in having so awful an 'epithet hurled at his head.' Let us assure him, however, that the gentleman in question has perfectly recovered from the shock, since we had the pleasure of making his acquaintance at the late conversazione held in Jermyn Street, and found him smiling and agreeable, especially while discussing our late tournament, indeed evincing not the slightest symptom of any recent shock to the system! Our nerves certainly were extremely agitated on reading the monster 'galactofuge,' hence the 'overwhelming epithet' 'macaronic,' linked with 'solecism,' arose to our lips (pen). Mr. Grimshaw assures us that he has not the honour of having coined the word. It is, we believe, in common use by the medical and chemical professions—more shame to them. 'Lactifuge' is, no doubt, the proper term to express the required meaning. As to the soft impeachment that we have been 'engaged in word-competitions,' we must beg to enter a disclaimer, utterly despising, as we do, such modern—— Well, we had almost written another 'overwhelmer,' but we refrain. With 'Oxoniensis' in his remarks on the coining of words we are fully in accord, and they vividly recall to mind the controversy which ensued on the necessity arising for a word to express a message by wire on the discovery of telegraphing by electricity. The battle was between telegram *v.* telepomp. The late Mr. Shilleto, the noted Cambridge classical 'coach,' maintained that the meaning of the former word was inappropriate, viz., 'a written *letter*, sent from afar,' and suggested that the latter meaning, 'a message from afar,' was the proper word; and although in our opinion he was perfectly right, his ruling was not accepted, the chief objection being that 'telepomp' would be shortened into 'pomp,' as in the case of 'omnibus' into 'bus,' and there might arise mistakes between 'pomp' and 'pump,' notably the 'Aldgate pump!'

We are not inclined to break a lance in defence of '*Mel sapit omnia*,' which, as we have often wondered, has escaped notice so long. Probably '*sapit*' has been credited with bearing the rendering 'flavours,' or 'gives a zest to,' which it certainly will not bear. A Mr. Mason, in a severe critique, published in the *Canadian Bee Journal* of February 23, upon a former communication to that journal by 'Amateur Expert,' improves upon '*Mel sapit omnia*' by writing it '*Mel sanit omnia*,' which he translates 'Honey heals everything,' but omits to say how he forms '*sanit*' from the Latin verb '*sanare*,' seeing there is no other from which it can be derived. But, perhaps, this is the *latest* American

discovery, or shall we say *invention* in the classical line?

A correspondent, in defence of 'Galactofuge,' reminds us that the generally accepted word 'Lactometer' has a Latin and Greek derivation. Here the proper word is 'Galactometer,' which is pure Greek, and no mongrel, being formed after 'barometer,' 'thermometer,' 'hygrometer,' and a host of other words. What a pity that 'Scientists' will be so perverse! Our correspondent apparently does not perceive that

'Two wrongs don't make a right,
Two blacks don't make a white.'

Dr. Goodwin, Bishop of Carlisle, in a short biography of Dr. Thompson, the late Cambridge Professor of Greek, and Master of Trinity, relates the following anecdote:—'An inventor of some new contrivance desired to advertise his invention with some new Greek name, after the pattern of the *Eureka* shirt, the *Eucnemida* gaiters, and the rest. The Professor of Greek seemed to the inventor the proper person to whom to apply for help in the formation of his new name. Application was made, and, in answer, the Professor expressed himself in this fashion: "My business as Professor of Greek is, to the best of my ability, to keep the language free from impurities. To apply to me for a new Greek word is much the same thing as writing to the Archbishop of Canterbury and asking him to invent a new heresy. If, however," he added, "you *must* have a new name, take this" ——, and he then gave a most ingenious Greek compound, with a marvellous number of syllables, and by me quite unrememberable. Professor Selwyn told me the story and repeated the name; I wonder if any record of it exists. It was a *verbum sesquipedale* (eighteen inches in length) beyond all mistake.' (*Macmillan's Magazine*, March, 1887).

Probably the word was of the same class, or similar to

'Aldiborontiphouskiphornihostikos,'

which is not quite eighteen inches long.

We trust our patient readers will pardon this long digression, particularly as we promise not to offend again, at least on any slight provocation.

JOTTINGS BY 'AMATEUR EXPERT.'

'Mel sapit omnia.'

I presume 'Oxoniensis' is not familiar with the motto of the Salters' Company, and its arms consisting of the three hard-boiled eggs. The Salters say, 'Sal sapit omnia,' inferring even such tasteless things as hard-boiled eggs. I substitute 'Mel' for 'Sal,' intending that those readers of the *B. B. J.* that honour me by reading the emanations from my pen should also infer that these 'jottings' required 'savouring' with 'mel' to make them palatable. The reasonings from the classics I must leave some of my scholastic readers to answer. A very clever and practical working mechanic assured me in good faith last week that the schoolmasters had committed moral suicide; they had ventured beyond their depth in word-construction and pronunciation and were drowned. Be it so. Practical people that call 'a spade a spade' will suffer no loss.

The quotations from the Gospels of St. Matthew and St. Mark rightly, in my opinion, give the sense of 'savour;' it was not that Peter 'minded not'—*i. e.*, paid no heed to—the things of God, but that his conduct on that occasion did not 'savour' (to taste of) of them, hence the epithet, 'adversary.'

But I was asked the meaning of '*Mel sapit omnia*' last week in another quarter; and I, thinking the answer would better suit my questioner, substituted 'sweetens' for 'savours.' Honey *sweetens* everything. He looked thoughtful for a moment, and as his eyes met mine replied, 'Blowed if it does though, it don't sweeten my old woman none; she always is agoing on about the "blessed bees," the mess, the sugar, and the honey sticking all over the house.' Poor chap! he wants a febrifuge. A guest of mine refused to eat honey at my table recently because he feared it contained *stings*. I assured him I had extracted them all, and so induced him to eat. Gentle reader, is it so with my 'jottings?' Whatever this errant pen runs on to jot, do believe there is no *venom* intended, but just sufficient 'formic acid' to keep the various matters treated on from 'fermenting,' and thus becoming unwholesome.

'L. S.' cannot get people to have the expert. Probably he is a good man, but I would greatly blame the people to take him on trust. I know a duly certified expert that did more harm to his Association in one week than four years have put right. You don't get people caught twice, and what earthly use is it sending bookworms to handle bees?

No, Mr. Boyes. I cannot allow you to back out of your strong remarks (869, page 129) about Carniolan bees, with thanks to me for telling you what you did not wish to learn, and the feeble admission that 'possibly in a good district in the sunny south they may gather enough to keep them through the winter.' On your own showing you have never tried them. I quite agree with your remarks on page 129, as far as they apply to Cyprians, Syrians, and many strains of so-called Ligurians (I say so-called, because I believe the Cyprians have been crossed into the Ligurians by some breeders to improve their colour), but to apply the same scathless condemnation to the Carniolans is unwarrantable. Try them in your cold east Yorkshire, and you will find them as hardy as your blacks (?), and, I repeat, they will require some beating as honey-gatherers; and if they hybridize your British (?) you will have no cause to regret it, either for temper, industry, or physique, and if you do not care to try them don't hinder others from doing so. Can't you get your little bird to whisper something as to my being the sixty-ninth cousin to the wife of some one that has some to sell? Shoot that little wretch at your first opportunity.

Gentle readers of the *B. B. J.* did you ever get a bee-keeper's nightmare? Has it ever been your lot to have a fine lot of bees given you by a friend? And when, with a glowing heart, you have acknowledged the gift by return of post, did you retire to bed—to sleep—perchance to dream—ah, horrid, horrid thought! Foul brood!! That gehenna of all scourges to bee-keepers, have they got it, and is that the reason your friend is so suddenly liberal? To refuse the gift would be to outrage friendship, receive them and so introduce the plague into your own neighbourhood, there to work ruin to your poorer neighbours, whom you love so well (?). Unhappy man that I am! Why did he make me the gift? Is it not better to endure the ills of outraged friendship than to cause your poorer neighbours to suffer loss? To look a gift horse in the mouth would be rudeness indeed; I must accept him, yes! And resort to phenol, thymol, salicylic, or carbolic, or, peradventure, burn them instantly on arrival without unpacking! Ye spirits of the night, keeping guard over my would-be slumbers, will you not dispel this phantom that banishes sleep from this throbbing brain? Tell me, is there foul brood to be found within six miles of the birth-place of the Bard? Happy thought! I will ask the readers of the *B. B. J.!!* How refreshing now does gentle sleep steal over these eyelids weary! To awake! Ah, there is the rub! To sleep and then to awake, write a letter to the Editor—the thought is charming!! why did it not occur to me before? And so, after two hours' fitful tossings, he sleeps well.—AMATEUR EXPERT.

A correspondent informs us that 'recently Mr. R. T. Andrews, Hon. Secretary of the Hertford District of the Herts B. K. A., lectured to the Herts Natural History Society on "Bees," and he out-Cheshired Mr. Cheshire by exhibiting some twenty diagrams of various parts of the bee, some of which were enlarged 8000 diameters and upwards.'

BRITISH BEE-KEEPERS' ASSOCIATION.

Meeting of the Committee held at 105 Jermyn Street, on Wednesday, April 20th. Present: T. W. Cowan (in the chair), Hon. and Rev. H. Bligh, Rev. F. S. Sclater, Rev. F. G. Jenyns, Rev. G. Raynor, Captain Bush, Captain Campbell, J. M. Hooker, W. O'B. Glennie (treasurer), and the Secretary. Letters were read from the Rev. F. T. Scott, Dr. Bartrum, and Dr. Walker regretting their inability to be present.

The minutes of the last Committee meeting were read and confirmed.

The Finance Committee presented their report recommending the payment of certain bills. The same were examined and ordered to be paid. In consideration of the balance in the Treasurer's hands being at a low ebb it was hoped that members in arrear with their subscriptions would kindly pay the same as early as possible.

A letter was read from Shropshire soliciting support to a proposed exhibition of honey, &c., at the Shrewsbury Horticultural Show to be held in August next, with the view of resuscitating the Shropshire Association. The application was referred to the County Associations Sub-Committee with power to make such arrangements as might seem to them advisable.

The Exhibition Sub-Committee presented their report in regard to a code of rules for the management of County Shows in accordance with the resolution passed at the Annual General Meeting. These rules having been considered, they were referred to the meeting of county representatives for further consideration.

Meeting of County Representatives.

Present: The Rev. E. Clay and R. King, Bucks; Mrs. Curry and W. B. Webster, Berks; Mr. Graham and W. Rayner, Middlesex; Rev. W. E. Burkitt, Wilts; C. H. Haynes, Worcestershire; W. L. McClure, Lancashire and Cheshire.

The minutes of the last Quarterly Conference were read and confirmed.

The resolution relating to the preparation of a code of rules for the management of County Shows having been read by the Secretary, these rules were considered *seriatim*, and various suggestions made thereon, more especially in regard to the following points:—

(1.) That the rules should provide that all honey exhibited should have been gathered by bees which were the property of the exhibitor at the time the honey was gathered.

(2.) That the paper edging covering the edges of glazed sections should be white in colour.

(3.) In regard to the exhibition of run honey in white flint glass jars, Mr. McClure contended that this ought not to be insisted upon, as the expense of such jars placed an obstacle in the way of cottagers exhibiting honey.

Various other suggestions were made, and the rules were referred to the Committee for further consideration, to be ultimately published in the *British Bee Journal*.

It was pointed out that the rules would in no wise be compulsory, but were intended as a guide for the drawing up of schedules.

The second Quarterly Conversazione of the present year was held on Wednesday, April 20th, at 6 p.m., in the Board Room of the Royal Society for the Prevention of Cruelty to Animals, 105 Jermyn Street, when amongst the numerous audience of ladies and gentlemen were Mr. Cowan, the Rev. F. G. Jenyns, Mr. Hooker, the Rev. G. Raynor, Mr. Glennie, Captain Campbell, the Hon. and Rev. Henry Bligh, the Rev. W. E. Burkitt, the Rev. E. K. Clay, Mr. Grimshaw, Mr. M'Clure, Mr. Baldwin, Mr. Graham, Mr. Rayner, Mr. Webster, and Mr. Leigh.

Mr. T. W. Cowan presided, and in opening the proceedings, said that it was usual at their meetings to exhibit new inventions and implements relative to bee-keeping, and to introduce debateable subjects for discussion. He therefore invited any one present to lay before the meeting any matter in relation to bees or bee-keeping which he thought deserved consideration.

The Rev. E. K. Clay said that a farmer in his district complained that bees had destroyed his roses; also that, owing to the constant extraction of honey by the bees from white clover that plant was rendered useless to graze sheep upon, because the bees had robbed it of all nutritive power. *Prima facie* there appeared to be some force in the farmer's contention regarding the clover, but he would like to hear the opinions of persons better acquainted with the subject than himself.

Mr. Rayner said that the bees came to the flowers to fertilise them, after which the latter soon began to droop and fade, because the part they had played in life was accomplished.

Mr. Webster thought it was a provision of nature that the flowers contained nectar in order to induce the bees to fertilise them. If there was no necessity to get the bee to the flower the nectar would not be there. When the flower fades it turns to seed.

Mr. Baldwin said if the nectar were not present it was a question whether any seed would be got from the flowers. He had never seen bees on roses except the wild rose. He had often wished those flowers contained something for the bees.

Mr. Graham said that a friend of his had told him that the flowers would be preserved much longer if the whole of the pollen-masses were to be nipped off the blooms, which would continue to produce honey. He had tried the experiment with success, the blooms lasting five days, while in other cases they faded in six hours.

Mr. Grimshaw agreed that the roses were not destroyed by the honey bee. It was a mistake to suppose that the value of the clover was deteriorated by the visits of the bee. The contrary was the fact. As soon as the saccharine matter of the plant stopped flowing the seed increased, and was converted by a chemical process within the cells of the plant into nitrogenous matter. Thus the value of the clover was increased, and the weight of it per acre was considerably greater when bees were kept in the neighbourhood than in districts where they were absent.

The Chairman said that the question before the meeting had been thoroughly discussed in America; where it was generally the opinion that clover was improved by the visits of the bee. Mr. Clay could tell his friend the farmer that the small quantity of honey the bee took amounted to nothing; because in any case it would be evaporated before the clover was made into hay. The clover contained starch in the plant itself capable of being converted into sugar in greater quantity than the small portion of secreted nectar, which was evaporated. Fertilisation of flowers was not the only object for the presence of nectar, although that was one of them. The chief object of the nectar in the plant was to nourish the seed, or particular parts of plants. Nectar would be found secreted some time after the plant had been fertilised by the bee, and until the ovary had been developed to a certain extent. Then it ceased, because there was no longer any need of special local nourishment. There was no doubt that the nectar did attract the bees, and was to some extent there for the purpose of inducing them to fertilise flowers; but there were many plants which did not secrete nectar at all, and yet were visited by bees, and there were many which secreted nectar, though this did not in any way assist in fertilisation.

The Rev. Mr. Jenyns, speaking as a rose-grower, said he never saw a bee upon the roses; and he felt quite sure that the bees could not be blamed for destroying those blooms.

A gentleman whose name did not transpire said he

thought the bees very seldom went to apple-trees. They favoured pear and peach trees, but very seldom apple-trees.

Mr. Baldwin thought a great deal of honey was obtained from apple-blossom, at least that was his experience.

Mr. Webster endorsed this view, saying that he knew a gentleman who boasted of his success in growing apples, which he attributed to the bees.

In reply to a gentleman who asked whether the fact that the blossom died off rapidly after the visits of bees was an advantage or not, the Chairman said that after the fertilisation had been accomplished, the object of the flower had been attained, and there was no longer any need for it.

The Rev. G. Raynor said his part of the country was noted for red clover. Some years ago he had about a score hives of Italian bees, and during one wet summer, the second crop of red clover, which was generally allowed to stand for seed, failed almost entirely throughout the country to yield any seed at all. The one exception to this was a farmer, whose farm was about half a mile from his (the speaker's) apiary, who succeeded in obtaining a good crop of seed, which he (the farmer) attributed entirely to the presence of yellow bees.

The Rev. Mr. Clay said that in Buckinghamshire, where he lived, the hills were covered with box-trees, and he thought a great deal of early honey was derived therefrom, as the bees seemed very busy round those blooms.

Mr. Rayner said he had noticed the bees amongst the crocuses during the early spring-time. Those flowers very soon went to pieces after the visits of the bees.

The Rev. F. G. Jenyns, the Chairman, and Mr. Baldwin thought that a very small quantity of honey was obtained from the box-tree, which supplied only pollen.

Mr. Grimshaw said a sure test of the presence of honey in the blooms was the odour which could be detected from a mass of them. When a distinct perfume was conveyed to the nostrils, either agreeable or otherwise, as in the case of mignonette or clover, there was no doubt honey to be found in the blossom, and that perfume was afterwards conveyed to the honey produced by the bee. He was inclined to the belief that box did not yield any honey at all, and he thought that the only odour it gave off was from the essential oil of the leaves; or it might be that pollen grains bursting on the sensitive parts inside the nostrils produced the impression referred to by Mr. Clay.

Mr. Webster said that very little honey was obtained from the willow, yet that tree emitted a pleasant odour.

Mr. Grimshaw would like to know if it was a debateable point whether the object of the nectar in the flower was not principally to tempt the visits of insects. He had understood the Chairman to dispute this, and he respectfully asked on whose authority the Chairman propounded an opinion at variance with the generally accepted view.

The Chairman said he knew perfectly well the generally accepted idea, namely, that the object of the nectar in the flower was to promote the fertilisation of the plant by insects. Darwin, Müller, and others, upheld that view, and he admitted that in many flowers it was the case; but the fact that an immense number of plants did not require insects at all for their fertilisation had induced another set of thinkers to believe that the nectar must be there for some other purpose. Gaston Bonnier and others had made many observations and experiments; and were of opinion that the primary object of the nectar was the nourishment of particular portions of the plant, and not fertilisation. That school of thought, amongst which he (the Chairman) was one from observation and experiment, had likewise come to the conclusion that in plants which were originally intended to be self fertilised, the bees had induced an irritation by their constant visits until the incessant scratching of the plant had caused a large quantity of nectar to flow, and have made the plant dependent upon insects for fertilisation. For instance, in Scrophularia nectar was secreted in abundance after the flower had been fertilised and the stamens and stigma had withered, but it served here for the nourishment of the ovary, and when it was no longer needed for this purpose the secretion ceased. There was no doubt that the constant irritation had produced diversity in the flowers. Now some flowers had arrived at a condition that they could not do without insect fertilisation, but he believed that they were not so originally. He admitted that the point was debateable, inasmuch as some of the great men referred to had differed in their conclusions on the subject; and that as many examples could be brought forward to show that fertilisation by insects was not necessary as the contrary.

Mr. Grimshaw thanked the Chairman for his able and lucid statement.

The Chairman (T. W. Cowan) said:—There is an important question I should like to bring before the meeting, and upon which a very interesting discussion might be started. It has reference to the food of the queen-larva (royal jelly), the food of the other larvæ, and also with respect to the digestion of such food. I am now in a position to give some recent investigations which will, I think, clear up those points conclusively. We have been taught for some time that the food which is given to the worker and other larvæ is partly digested in the chyle-stomach of the worker-bee; for this digestion, and the providing of this food, the young bees act as nurses. Dufour was one of those who taught this, although Swammerdam alluded to it before; and we have always accepted the idea that the larvæ were fed with this semi-digested food. Leuckart was also a partisan of this theory. However, when the glands were discovered, Leuckart thought he was not quite satisfied with this theory of semi-digestion, and he suggested that the larvæ were fed with a secretion from the different glands. In the honey-bee there are four pairs of glands; three pairs in the head, that is, two pairs in the upper part, and one pair in the jaws, and one pair in the thorax. Leuckart supposed that these glands furnished the food for the larvæ as well as the food for the queens. Schiemenz, who was a pupil of Leuckart, was induced to take up and investigate the matter thoroughly. He did so, with instructions from Leuckart to examine specially the functions of these glands in relation to the food, and he published the result of his researches in 1883. I have his work here with all the drawings, if anyone present likes to look at it. He went into the subject very fully indeed, and it is the most complete description of the glands we have. He came to the conclusion that the food was a secretion produced from the glands. For some years since 1854 Schönfeld has been at work likewise on this subject. He described the digestive system of the honey-bee particularly in the *Bienenzeitung* and his discoveries from 1854 to 1883. Below the honey mouth (*Magenmund*) there is a neck which connects the honey-stomach with the chyle-stomach, and from this mouth into the chyle-stomach there is a prolongation through which the honey and pollen passes from the honey-stomach into the chyle-stomach; and Schönfeld, by experiments and microscopical examination, showed that this internal prolongation could be turned inside out or inverted so that the bee could disgorge the digested food from its stomach by way of the œsophagus into the cells. These alleged discoveries were thought to be very singular by Leuckart, Fischer, Vogel, Dzierzon, and others, but they continued to insist that the food of the bee was a secretion; some were going so far as to call it *Milchsaft*, or milk food. Leuckart says that the food of the larvæ of the queen,

workers, and drones, is exactly the same. But Leuckart, in 1858, discovered that the food of the larvæ of worker-bees was subject to some variation, that it was not always the same during the whole of its larval existence. For the first three days the food was liquid, and appeared like a secretion. After that pollen and honey were added to it, which could be detected by the microscope. The queen-larva, on the contrary, was fed with the same food throughout its larval existence, that is, from the very first day of the larva leaving the egg to the day it was sealed up; and he said it was owing to this that the queen was produced instead of a worker. The weaning took place on the third day, and it was exactly at this time that the ovaries began to make their appearance in the female bee, and by changing the food in the case of a worker this development was arrested and a worker produced, whereas by continuing the same food a queen was produced. The same thing took place with regard to the drone, except that instead of three days the drone was fed on the same food for five days. We have always hitherto been led to believe that this food was alike, at any rate during the first three days, and that the greater abundance given to the queen-larva produced the development more rapidly. Dr. A. de Planta has been at work for two years in trying to settle the question by analysing this food, and has had considerable difficulty in carrying out his investigations. Some idea may be formed of the magnitude of the work he has been engaged on when I say that he has had to operate upon 120 queen-cells, 4000 drone-cells, and 10,000 worker-cells. I believe only one chemical analysis of the food had been made prior to this, namely, by Schlossberger in 1871. He took all the food he could get hold of, put it together and analysed it on the supposition that the food was the same all through. Dr. Planta was not satisfied with that, and wished to settle the point by analysing the different foods separately, and his chemical experiments have confirmed step by step the observations of Schönfeld, and have shown him to be right. Dr. Planta analysed the substances contained in the queen-cells, worker-cells, and drone-cells, and the result of these investigations showed, as regards the different ingredients of the different foods, the following proportions:—

Albumen	46·5	per cent for	queens.
,,	50·16	,,	workers.
,,	39·91	,,	drones.
Fatty Matters...	12·62	per cent for	queens.
,,	6·84	,,	workers.
,,	7·85	,,	drones
Sugar	17·90	per cent for	queens.
,,	27·65	,,	workers.
,,	1·17	,,	drones.

The above tables refer only to dried food. As regards the water contained in each food there is not a very great difference. The proportions are as follows:—

66·64	per cent for	queens.
71·09	,,	workers.
72 75	,,	drones.

These figures show that the food of the queen contains less water than that of the drones or workers; and I dare say all of you know that the food in a queen-cell is much stiffer in substance, and is able to stick to the top of the queen-cell hanging down and to support the grub. With regard to albumen, you see the worker stands at the head, whilst in respect to fatty matter the queen is first, and the drones and workers in nearly equal proportions. In regard to sugar the workers are first, then comes the queen, and the drones have very little indeed. Drones are the fewest in the hive, and I think we must not grudge them the small quantity of honey they take, seeing that they get so little sugar during their larval existence. The figures I have given may not convey much to you, but with regard to richness of the food I may tell you that in 100 queen-cells there are 356 times more dry nutritive substances than there are in 100 drone-cells, or 232 times more than in 100 worker-cells. Then Dr. Planta tried another experiment, namely, in order to judge upon an equal basis he compared the dry substance in 100 grammes of fresh food. In this he found that it contained 4·92 grammes more of dry nutritive substance than 100 drone-cells, and 3·26 grammes more than those of workers. Testing in every way the food of the queen, there can be no doubt that it is the richest and best from the commencement. Now, if the food were a secretion similar to milk, it would always be the same, or at least it would vary to a very trifling extent; but as it varies as greatly as Dr. Planta has shown, and has chemically proved to be different in its composition, there can be no doubt that it is a digested food elaborated in their chyle-stomach, and that the bees at will vary the ingredients thereof to suit their particular purpose. They can voluntarily add the necessary ingredients, such as pollen, honey, and nectar, more or less diluted with water. So far as can be ascertained there do not appear to be any particular bees set apart for the purpose of feeding particular grubs, but that up to a certain age the feeding capacity is the same in all cases. We suppose that the bees must have the voluntary power of supplying one kind of food or the other as may be wanted. This subject is a very important one, because upon it to a great extent is based the raising of queens. The question naturally arises, Are queens that are raised by natural means as good or better than queens raised artificially? Now, I always maintained, and I think I have good reason for maintaining, that queens should be raised from eggs, because they get the better food from the very first day when the eggs hatch. The analysis of Dr. Planta and the conclusions he comes to go a great way in favour of that theory. Queens must be better if raised on the best food from the commencement. I have known queens started on larvæ four days old. If a queen-cell is started after the fourth day there has been one day in which the development of the ovaries has been arrested, and she can never make a good queen. Also microscopically Dr. Planta has been able to show that the worker larvæ receive this digested food for the first three days, and after that pollen and honey; drone larvæ are reared after the fifth day; while the royal food is always a chyle food, and never has either pollen or water mixed with it.. I think I have now placed this matter before you as fully as I am able to do. It appears to me that we may now look upon this question as decided, namely, that the food is produced in the chyle-stomach of the bee, and is not a secretion. I do not wish it to be understood that the secretion of the glands has nothing to do with the food, because Schönfeld, Holtz, and others admit that the secretions from the glands are added to the chyle food, but are not the actual food itself, which consists of digested pollen and honey. The results of the investigations referred to will be published in Germany in about a fortnight's time, and I hope then to be able to say something more on the subject in the columns of the *Bee Journal*.

Mr. Rayner and the Rev. G. Raynor agreed that queens raised from eggs in the natural way were better than those raised from larvæ four days old.

Mr. Webster said that he had twenty or thirty queens raised artificially on Alley's system, and he could not detect any difference between them and those raised in the ordinary way.

Mr. Baldwin and Mr. Webster discouraged the raising of queens in small colonies.

Mr. Grimshaw asked whether if the worker bees in feeding the larvæ mix their proportions in some injudicious quantities, the result would be that a fertile worker would be produced.

The Chairman said it was supposed that the workers who became fertile had received an extra large proportion of rich food. Instead of being weaned at the proper

time, the rich food had been continued to them beyond that period. If a worker were fed thus for four days the organs would have one day's development. In an ordinary worker they were stopped on the third day.

After a few words from Mr. Rayner to the same effect, Mr. Webster asked whether the bees committed any depredations on fruit. He thought peaches suffered from their attacks.

The Chairman said he thought bees would not attack peaches or grapes until after wasps had penetrated the skin thereof and made a hole through which the juice could be sucked.

Mr. Webster was under the impression he had seen bees go to sound fruit, make a hole, and suck juice therefrom, and this opinion was confirmed by a gardener he knew.

The Rev. G. Raynor thought there must have been some wound in the fruit not noticeable. Perhaps the fruit was dead ripe, and the juices were oozing through the skin, in which case the visits of the bees were accounted for. Bees had not the power to penetrate the skin of fruit.

Mr. Graham and Captain Campbell agreed with Mr. Raynor, and pointed out that the mandibles of wasps were much larger and more powerful than those of bees.

The Chairman said that the only fruit the bee could pierce was the raspberry, which was very thin-skinned.

The Chairman exhibited some section boxes prepared by Mr. D. A. Woodley for sale and exhibition purposes. Each one consisted of a frame-work of tin, with three sides turned up at the edges. Into that frame work the section with side glasses was placed, the whole being covered with a little cap, there being a margin of some width at the sides. He thought it a neat way of glazing and sending sections about; the price of them was not stated.

Mr. James Lee explained and exhibited a new system of hive-making, the principal feature of which appeared to be the ready, novel, and convenient way of putting together and taking to pieces the frames and sections, which were intended to be filled up with foundation, leaving no passage at the bottom.

The appliances were examined, and commented on at some length by several of the audience, the general opinion being favourable to Mr. Lee's exhibits, the Rev. G. Raynor and the Chairman endorsing that view.

Mr. Hooker exhibited a super crate, for which he claimed some advantages. The bees could travel from end to end between the sections, and round the outside of them. The sections could also be got at and removed by an instantaneous method.

Messrs. Abbott showed some useful American hives and frames, the principal merit of which was their cheapness, the price being 7*s.* 6*d.* in the flat and 9*s.* 6*d.* made up. They also exhibited a novelty entitled a 'Jubilee embedder,' made out of a clothes peg, and sold by the trade for 11*d.* This article was not manufactured nor recommended by Messrs. Abbott, but merely laid before the audience as a specimen of the inferior workmanship put in the market at the present time. An opal jar price 1½*d.*, an American uncapping knife, price 1*s.* 6*d.*, and a small phial of Grimshaw's apifuge (a preventive of bee-stings) were also exhibited by the same firm.

Samples of section crates with queen-excluders between each frame, specimens of simplex glazing, and improved drone-trap for preventing swarming, were exhibited on behalf of Mr. W. P. Meadows.

The Chairman showed the Woiblet Spur Embeddor, and produced two photographs of Forsay's apiaries in Switzerland, which he was sure would be interesting to all who were acquainted with the works of François Huber. One of the photographs showed the identical house in which Huber lived, which was now occupied by a large bee-keeper, who kept about 200 hives, and had not had a natural swarm for years. The second photograph showed another apiary belonging to the same gentleman, and devoted entirely to queen-raising. Only Italian bees were kept at the latter apiary, which was five miles distant from the other one. It was pleasing to know that fifty years after Huber's death an enthusiastic bee-keeper lived on the spot where that great man had made all his observations. His (Huber's) grandson was a personal friend of the chairman, whom he called on in Lausanne and presented with a photograph of his grandfather taken from an original miniature.

Mr. Lee exhibited a portable box, provided with leather hinges, and which could be taken to pieces and folded up. It was designed for carrying sections with safety.

Mr. Baldwin moved and Mr. Graham seconded a vote of thanks to the Chairman, which was briefly acknowledged, and the meeting was brought to a close.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Upper St. Martin's Lane, London, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *King's Langley, Herts* (*see 2nd page of Advertisements*).

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

THE NEW RACES, ETC.

[930.] Your correspondent (926) appears unwilling to admit that his fancy in regard to the colour of the British bee is an error, but nevertheless he will find few agree with himself on that point. I do know of one or two who have endeavoured to draw a line between what they were pleased to call black and brown bees; but such persons have generally been obliged to admit that there was really no such distinction when a little common sense was brought to bear upon the subject.

In his former letter the same correspondent expressed his opinion that we had long since heard the last of Cyprians, &c., but now he mentions Messrs. Raynor and Cowan as giving their 'last' years ago. Now, does he consider that both of these gentlemen have a decided preference for Cyprians? Why, then, does he make such contradictory statements—and how does he measure time? Does he suppose that even a decade of years is sufficient to establish the merits or demerits of any variety? Surely no shorter time can be allowed for a thorough and general trial. Prejudice never can be overcome, but many of the difficulties arrayed against those who introduce anything new can and will be overcome with regard to the new races of bees.

The survival of the fittest! Oh, yes! of course the peculiar colour of the natives in your correspondent's own district must have something to do with their other remarkable qualities. He may be possessed of bees thus selected, shall we say, by Nature, or by the bee-keepers' own happy-go-lucky style of the let-'em-alone policy? Really, I have something yet to learn, even in the matter of breeding, though I must confess I had been under the impression that practical bee-keepers were taking this matter of selection into their own hands, and, too, were doing it just a little bit better than Nature unguided.

Well, friend Boyes, suppose you have the survival of the fittest, you have but the best of one race only, and I agree with you a good sort at that; but you are not going to sit down and be satisfied when a little persuasion will convince you that there are better bees of

another sort, and you do not need to be told that even a combination imparts more vigour and brings more profit from the stock of whatever kind you may name. Can you be content to stay when but half-way up the ladder, and say you have done? I think not.

And why that insinuation as to my impartiality? How much better had you come straight to the point, and have said out what you mean. Of course, I know full well that those who have no charity towards their neighbour will say as you insinuate. Now, let me speak plainly. My advertisements are in because it is the season for so advertising. My articles on bees are given now because I always do my best to give statements just when they will be appreciated, and I cannot conceive any better time than the present for explaining what I have myself gleaned from an extensive experience with the varieties of bees under consideration. What I have found to be of value in connexion therewith has been appreciated by myself, and if others wish to take advantage of such statements and to make a trial for themselves, the whole season lies before them, and they may get their queens from whom they will.

Mr. Boyes must consider that there are others beside myself who are in the trade: but why must one's statements be all for 'self?' Does he so lose faith in human nature that he cannot conceive a man giving an honest opinion? Even in trade, is it all for self? Far from it. First there is the deeply implanted instinct of self-preservation—a man must work or die; and in working he labours for the good of all; each depends upon the other, and the whole community forms one vast 'mutual benefit' society. Friends, may we have heard the last of such insinuations, which destroy all good feeling and disgrace the pages of the *Journal*, while forming no part of, but being one of the greatest hindrances to, a full and fair discussion.—S. Simmins.

DE QUIBUSDAM.

[931.] It is some time since I found leisure to write under this heading, but as 'Oxoniensis' has touched a subject closely allied to 'Nomenclature' on which I once addressed you, let me follow him. Certainly it *is* difficult to assign a satisfactory meaning to *mel sapit omnia*, or rather to see how the combination of words can be used with any appropriateness. I feel that it would be rather straying away from the subject of bee-keeping if I said all I intended to with respect to the classical uses of the word *sapere* which 'Oxoniensis' quotes, but I should just like to suggest whether he is not a little inconsistent in his statements. In the first place, he says that *sapere*, connected with the Greek σαφής, means 'to taste' or 'to have a taste or flavour of' a thing, while afterwards he gives 'to be wise,' &c. as the chief and ordinary meaning. I accept the former, though the connexion with σαφής (clear or manifest) is not quite clear to me. I daresay 'Oxoniensis' is aware of the late use of the word in the sense of having an agreeable flavour, or of being pleasant *to the mind*. Like many Latin words its meaning seems to have wandered curiously to and fro between neuter to active, but the conclusion arrived at must I fear (for 'A. E.'s' sake) be accepted that *mel sapit omnia* will not stand criticism.

Though no doubt 'A. E.' will be the best exponent of his own meaning, it has always struck me that he did not mean to convey that 'honey *had* a taste' of anything, but that it *gave* a flavour, that an agreeable one to whatever it was used with. But it must be confessed that these qualifications are absolutely not conveyed by the words themselves.

By all means let us be correct in our mottoes and in our nomenclature, and with respect to the latter I should like to ask whether a hive intended to be turned topsy-turvy is correctly named 'invertible,' as one able to be inverted? I am sorry I have not the 'Imperial,' but I like the word less every time I see it. Verbal criticism is not the most agreeible occupation, but the word has to me an unacceptible, not to say an objectionible appearance, and I do think that the use of the *i* instead of *a* is at least debateible, and if the spelling is wrong I hope it is even yet amendible.

I am glad that suggestions have been made for judging. This is practical; but rules as to colour and granulation, for example, must vary with localities. I should like to say more on this subject at a future time than you will bear with now. As I wrote a year ago on 'Croaking,' I may just say that when I heard it there was at any rate no American cloth on the hive. The tree box which Mr. Boyes mentions is certainly much frequented by bees in the spring, but its odour in passing is most offensive, and, knowing what privet is capable of, I am thankful that it does not bloom in the summer. I know of no one in these parts who is yet prepared to turn his frames or his sections upside down. (What a crash if we were treated so!) I, for one, am quite satisfied with present results and have no belief that the method will be found successful. Nor do I think these accurately designed bee-spaces can be maintained. Frames in the body hive will vary with the weight of honey, and so will the carriers of sections, whether metal or wood, and I mean to keep my sections together with springs, quickly set and quickly withdrawn, till screws with their objectionable projecting heads have become things of the past.

One word more. What a revolution from the one-way section sent me in mistake last year to that of four-way now advertised! I shall not be surprised if these cause trouble, giving less control over the bees when shifting and removing, encouraging more propolisation and sometimes inducing the construction of comb attachments. We shall see.—C. R. S.

NOMENCLATURE.

[932.] 'To your tents, O Israel.'

To your dictionary, O erudite 'Oxoniensis.'

Our sapient critic confesses to have been right glad of his 'Imperial' at his side, and thinks he has scored two *imperial p'ints* in his pseudo-exhaustive criticism by managing, through its aid, to comprehend the meaning of 'macaronic solecism.' In order that he may look up 'all the fuges,' I will refer him to a lexicon by one Webster, Ed. 1886 (*coch. amp. ter in die.*)

The village lads here frequently capture a kind of bee which they call 'double stenged.' I think we have got such an one in 'Oxoniensis,' for his shaft (917) is split like that of our own worker-bee, and dug in somewhat at random, one half for me and the better half for 'Amateur Expert' (I hope his better half will give *him*, 'A. E.,' the moral support this time). I have but to deal with dart No. 1. I laid a trap and another fell into it. In one of the early lessons of manhood we were taught to be cautious, therefore, 'Oxoniensis,' when he attempts trenchant criticism, should read carefully and quote accurately before charging me with 'inventing another term Galactofuge,' and that 'he (myself) must have felt as guilty as if he had committed the seven deadly sins at one time.' He says also that I should feel nervous with such a macaronic solecism hurled at my head; and, again, 'that the author of this overwhelming epithet [Galactofuge] has evidently been engaging in the word-competitions that have been so popular of late.'* Here comes the pit into which our 'Ox.' has fallen. I did *not* invent the word Galactofuge, it is a common medical and dictionary term, as are Galactometer, Galaxy, Galactagogue, Galactia, Galactin, Galactirrhœa, Galactocele, Galactites: it is as significant and common in its proper place as tonic,

* See 'Useful Hints' on this, p. 181. The overwhelming epithet is 'macaronic solecism,' not 'galactofuge.'—Ed.

diaphoretic, or purgative. Thus do I consign my critic, 'O.,' to the purgatory of etymological investigation; a further course of 'Imperial' will do good.—R. A. H. GRIMSHAW, *Crag Hill, Horsforth, near Leeds, April 22nd.*

MEL ET SAL.

[933.] Evidently of late a spirit of fastidious hypercriticism has appeared in the pages of the *B.B.J.*, which has resulted in the edification of a few, but which, I am afraid, has proved a bewilderment to the majority of your readers. The last aspect of this spirit has shown itself in an onslaught on the motto adopted by your interesting correspondent, the 'Amateur Expert.' 'Oxoniensis,' clad in the panoply of classicism, has run full tilt on our friend, who, though perhaps temporarily recoiling under the first fierce shock, will, I feel sure, speedily recover and be found with his front to the foe, with his banner bravely flaunting in the breeze, bearing the now familiar motto, *Mel sapit omnia*, as brightly legible as ever. 'Oxoniensis' must feel much refreshed after his lengthened flight. I have found it very interesting to follow him in his gyrations. He has passed from *sapere* active to *sapere* neuter. He has pointed us to a rather dubious derivation, and has also directed us to a very pleasant compound. He has loitered in Tusculum, and tarried in Brundusium. He has interviewed rhetorician and poets. He has visited writers sacred and writers profane; and the result has been that the ground he has alighted upon is soft and uncertain. Within the narrow canons of criticism the deductions of 'Oxoniensis' may be entertained. But the limits of the lines drawn by classical writers are sometimes rigid and constrained. Could not 'Oxoniensis' (*Almâ Matre favente*) widen his circle and extend his horizon? Latin need not necessarily be confined to classical writers: there was a Latin literature after they had passed from the scene. There is Latin patristic, there is Latin mediæval, there is Latin heraldic, and Latin is intimately connected with various sciences in recent times. Evidently *Mel sapit omnia* is a modification of *Sal sapit omnia*, which, though of post-classical origin, is an old and world-wide proverb, and is best known as the motto of an august and respectable City Company. 'A. E.' is not isolated: the contention does not only rest with him. *Salt savours all things:* and as this is true of the wider world, so *Mel* may be said to be the great inspiring power of the more limited bee-keeping world. *Mel* is the end-all and be-all of the industry and activity of the honey bee. *Mel* is the bright goal in prospect of all bee-keepers. *Mel*, we may safely say, has ever been that which has permeated and leavened the writings of 'A. E.'; and I trust that all that those engaged in bee-keeping may say and write, do and think, will ever be savoured with *Sal* and sweetened with *Mel*.—T. P. ATTICUS.

MEL SAPIT OMNIA.

[934.] The motto of the Salters' Company (*vide* their hall in Cannon Street) is *Sal sapit omnia*, which I have always taken to mean 'Salt seasons all things.' Our friend 'A. E.' in using the modification *Mel sapit omnia*, intends, I suppose, to convey that his writings are all seasoned or flavoured with honey. I am curious to see the replies to 'Oxoniensis.'—F. LYON.

[922] *Foul Brood.*—From the applications for Cheshire cure, I could take a map of the United Kingdom and colour in the districts most affected by foul brood. One in particular I should shade in pretty heavily. I can tell Mr. Gibbins that I do not recollect (of course I cannot answer for others whom I supply in wholesale quantities) sending any to the neighbourhood which he names; I should therefore consider it clean.—F. LYON.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

PERPLEXED.—*Transferring.*—The young bees you describe as crawling on the ground had no doubt fallen from the combs, when transferring, on the floor-board, and being unable to remount had crawled out of the hive. On being again returned, still unable to mount the combs, they were extruded by the older bees. A very slight degree of cold chills *young* bees. You would have done much better to have transferred the *whole* of the frames, combs, and bees to the new hive, simply shaving off the excrescences. If the transferring was done in the open air, on a fine warm day, the absence of hives for a distance of one mile—or even of three—would not secure you from an attack of robbers, and it is not at all unlikely that your bees suffered from these, as well as from the other cause suggested.

PATIENCE.—*Bees dying.*—The particulars you give are not sufficient to enable us to form an opinion as to the cause of your bees dying. Had you stated fully their antecedents, stores, kind of hive, and management we might have done so. From what you say we are inclined to think that the food given was insufficient and of too coarse quality; or dysentery may have attacked them. Study *Modern Bee-keeping* or *Cowan's Guide.*

REV. J. H.—The seed forwarded under the name of Alfalfa from your son in America is Lucerne, which is quite common in England and on the Continent. It is a good honey-plant, but yields no pollen.

H.—The queen you send reached us too much dried up and shrivelled to speak with certainty. She is very dark, but we have seen many pure Italian queens quite as dark. You may judge better from her progeny, and if she was a hybrid there would be many black bees amongst the workers.

FAR NORTH.—Some disaster has befallen your queen during the winter season. She is evidently now a drone-breeder, and there is no probability of her restoration to her former fertile condition.

C. K.—In the locality where you are situated, without a tree or a shrub for swarms to settle on, you would find clipping the wings of the queen an advantage; but you must exercise great care in the operation so that her ovaries should not be injured.

J. HEWETT.—1. Thickish brown-paper glued on the sides of sections would not answer the purpose of a divider. The bees would waste all their energy in their endeavours to remove it. 2. Your proposed plan of covering up the bees would not be practicable. The covering, be it a quilt or enamel cloth, must be placed on the tops of the frames.

E. P.—The two pieces of comb have come to hand. They are not affected with foul-brood.

M. H.—*American cloth.*—It is right to use the shiny side next the frames. But for moisture to come 'through the sides' of the hive, presuming they are of wood, cannot be owing to the use of the cloth. Probably the roof leaks and the water runs down the hive-sides. The cloth need not be taken off in hot weather, except to put on a rack of sections.

J. C. I.—*Drones.*—A stock which is ready to swarm always contains drones.

R. L. R.—*Frames of comb filled with heather-honey.*—If the bees will not clean them out, try the following plan:—Immerse the combs in water at about 90°, leave them until quite warm through, and lay them one at a time flat on the top of the frames, cover up warm with quilts. The honey will soon be carried down. When the lower side is emptied turn the comb over, or else it will be destroyed, to get at the other side.

*** *The length to which our report of the meetings of the B.B.K.A. has extended has obliged us to postpone several communications.*

Show Announcements.

June 23, 24.—Suffolk Agricultural Show at Bury St. Edmunds. Entries close June 16. J. Huckle, Secretary.

July 11–15.—Royal Agricultural Show at Newcastle-on-Tyne. Entries close May 12. J. Huckle, Kings Langley.

July 20-22.—Lincolnshire Agricultural Society at Spalding. Entries close July 4. R. R. Godfrey, *Secretary*.

July 26, 27.—Warwick Agricultural Society at Sutton Coldfield. J. N. Bower, Knowle, Secretary.

July 27.—Bishops Waltham Show. (Hants and Isle of Wight Association). H. W. West, Hon. Sec., Swanmore House, Bishops Waltham.

August 3–5.—Yorkshire Agricultural Society at York. Secretary, H. L. Rickards, Poole, near Leeds.

Business Directory.

HIVES AND OTHER APPLIANCES.

ABBOTT BROS., Southall, London, and Merchants' Quay Dublin.
APPLETON, H. M., 256A Hotwell Road, Bristol.
BAKER, W. B., Muskham, Newark.
BALDWIN, S. J., Bromley, Kent.
BLOW, T. B., Welwyn, Herts.
BRITISH BEE-KEEPERS' STORES, 23 Cornhill, E.C.
BURTT, E. J., Stroud Road, Gloucester.
EDEY & SON, St. Neots.
HOWARD, J. H., Holme, Peterborough.
HUTCHINGS, A. F., St. Mary Cray, Kent.
MEADHAM, M., Huntington, Hereford.
MEADOWS, W. P., Syston, Leicester.
NEIGHBOUR & SONS, 149 Regent St. & 127 High Holborn.
STOTHARD, G., Welwyn, Herts.
WERSTER, W. B., Wokingham.
WREN & SON, 139 High Street, Lowestoft.

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BENTON, F., Munich, Germany.
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SIMMINS, S., Rottingdean, near Brighton.

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LYON, F., 94 Harleyford Road, London, S.E.
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NEIGHBOUR & SONS, 149 Regent St. & 127 High Holborn.

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BRITISH BEE-KEEPERS' STORES, 23 Cornhill, E.C.
HOWARD, J. H., Holme, Peterborough.
NEIGHBOUR & SONS, 149 Regent St. & 127 High Holborn.
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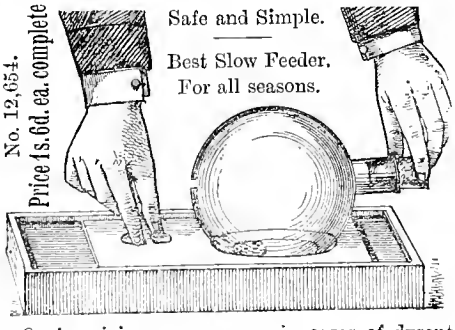

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THE
BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, St. Martin's Lane, W.C.'

[No. 254. VOL. XV.] MAY 5, 1887. [PUBLISHED WEEKLY.]

Editorial, Notices, &c.

OUR WILD FLOWERS.

As with the soft zephyr or the tempestuous blast it is impossible to trace whence it cometh or whither it goeth, so with philanthropic objects it is difficult to point out the actual real good that may in the end result from praiseworthy endeavours. The snow-ball, so small at first, continually rolled over earth's winter's shroud, increases as it is pushed along till at length it becomes too unwieldy, and remains a mark of exerted perseverance. Societies are started with a primary object, and when their endeavours are being crowned with success, not unfrequently outsiders perceive that good is resulting in a direction never dreamt of by the original promoters. An instance of this has forcibly come under our notice in the objects of an Association called the Selborne Society. Its work is divided into several branches, but the third section, dealing with the protection of our wild plants and flowers, is the division that will prove of benefit to bee-keepers, and has been the means of calling forth our remarks on the present occasion. In one of the letters of the March number of a pamphlet published by that Society, the writer remarks: 'Our teeming population has been born of industrial prosperity, so that streets of dreary houses have spread over the land; large districts have been blasted with sterility by factories, minings, and smeltings, and year by year the orchis and primrose yield to the cabbage, favourite dells of the nightingale become cinder-heaps, and bosky hillocks of the yellowhammer, "rows" and "courts." . . . . Rural England has shrunk and must shrink, but we still have a country of excelling beauty and variety, and to preserve this in the fulness of its riches against needless and wanton attacks is the work which the Selborne Society in its modest way would seek to further.'

The protection of wild flowers would indeed prove a great boon to bee-keepers, as, after all, the majority of those following the pursuit have to depend almost entirely on the flowers in our hedge-rows, fields, and woods. Those possessing bee-farms may plant, and with great advantage and profit, but by far the larger number of those keeping bees have neither the time, money, nor estate, to devote to the cultivation of honey-producing plants

By the protection of our wild flowers not only will our charming country be beautified and men's hearts gladdened by the varied and rich hues of our flora, but great quantities of nectar will be produced, to be carried home by the bees, and so enrich their owners. Thus the Selborne Society, by their modest endeavours, will actually be assisting one of England's advancing industries, providing a source of income to many of its rural inhabitants, and doubtless doing good in a direction they could never have thought of.

Wild flora will always prove a profitable pasturage for our bees, as the cultivation of small gardens of flowers for our favourites is useless. Commons surrounded by woods are well known to make an apiary productive, those abounding with wild thyme and various other flowers which the scythe never touches are especially good. As Thomson says:—

> 'Here their delicious task the fervent bees
> In swarming millions tend: around, athwart,
> Through the soft air the busy nations fly,
> Cling to the bud, and, with inserted tube,
> Suck its pure essence, its æthereal soul;
> And oft with bolder wing, they soaring dare
> The purple heath, or where the wild thyme grows,
> And yellow load them with the luscious spoil.'

HONEY AS AN ARTICLE OF FOOD.

We have much pleasure in transferring to our columns some well-timed remarks on the value of honey which appeared in the *Liverpool Journal of Commerce* of April 23:—

'The value of honey as an article of food is, we are afraid, only imperfectly appreciated by the public. Every one is ready to acknowledge its luscious sweetness, but comparatively few are cognisant of the fact that, in addition to this quality, it is in the highest degree nutritious. It is more aperient and detergent than sugar, and no healthier food can be found for children and those who cannot do with an excess of cane or other sugar. This needs only to be generally known in order to bring honey into more prevalent use than is the case at the present moment. Apart, however, from this primary domestic consideration, the matter has an important commercial aspect. Not long since we used to rely upon the production of our own hives; but this is now changed. With the increased facilities for transport and low freights it has been found a profitable business to bring the article from many quarters of the globe. California, Canada, Chili, New Zealand, Portugal, France, the West Indies, and many other parts are now laid under contribution, and in some cases the trade has assumed enormous proportions, employing much capital

and labour. This is particularly the case in California, where it promises to become even more extensive in the future. Like many other products, however, honey has had to bear the brunt of the depression and competition of the present day, and latterly prices have not been remunerative to the producers, some losing as much as 50 per cent on their importations. This has been caused principally by the cheapness of sugar and the consequent low prices of preserves and other dietary articles into which sugar largely enters. Another factor is the want of a better knowledge on the part of the public respecting the value of honey as a wholesome article of diet, to which we have already alluded. Much has been done during the past few years to place it before consumers in a perfectly pure state, and the success which has attended the efforts in this direction is very gratifying, and will, no doubt, be in due time fully acknowledged by the public. Judging from the present position of the article, there can be no doubt that the bottom prices have been reached, and an advance is inevitable, as the producers show no inclination to sell at the late ruinous figures. In addition to this there is every prospect that the coming season in California will be a poor one, thus limiting the output from the most prolific source. What would tend to place the article upon a better footing would be an improved system of distribution, and that the public should be made more familiar with its value as a food product.'

ROYAL AGRICULTURAL SHOW.

Our readers are reminded that the entries for the Royal Agricultural Show to be held at Newcastle-on-Tyne close on May 12th. Provision is made in the Schedule for the return of all fees for honey entered which the exhibitors may not be able to send for exhibition.

Honey-producers and manufacturers residing in the Northern and Midland Counties should give this Exhibition their best support.

SUFFOLK AGRICULTURAL SHOW.

A liberal Prize List for honey and bee-keeping appliances has been prepared in connexion with the Suffolk Agricultural Show to be held at Bury St. Edmunds. Entries close on June 6th.

Early application for Prize Lists of this and the preceding Show should be made to the Secretary of the B.B.K.A., J. Huckle, Kings Langley, Herts.

LINCOLNSHIRE AGRICULTURAL SOCIETY.

The first schedule of bees, hives, and bee-appliances, which has reached us this year is that of the Lincolnshire Agricultural Society; and we hail it as the harbinger of the numerous apicultural shows which we hope will be held during this Jubilee year 1887. The Lincolnshire Agricultural Society have wisely entrusted the Bee Department to the Lincolnshire B. K. A.; and we feel sure that Mr. R. R. Godfrey and his experienced assistants will worthily discharge the trust thus reposed in them. It will be seen from our advertisement columns that the prizes offered for excellence in articles exhibited is rather in excess of those of the previous year. The Exhibition will be held in Spalding on Thursday and Friday, the 23rd and 24th of July. We hope the bee-keepers not only of the county, but of the United Kingdom, will assist and encourage Mr. Godfrey, and by their united efforts make the exhibition a great success.

MR. CHESHIRE has requested us to state that his address in future will be Rosemont, Tweedy Road, Bromley, Kent.

ANSWERS TO MR. ROUTH.

Dear Mr. Editor, my name you will see
Is quite a new one in the *Journal B. B.*,
I've made an attempt, tho' living far south,
To answer the queries of Mr. R. Routh.

Suppose it is winter, and sunshine bright,
And snow reflecting into the hives, light,
Tempting the bees to an unlucky flight,
A zig-zag entrance will make it quite right.

For seven long years bees I have kept,
And never yet had a quilt the least wet,
My covers stand on the hive sides exact,
And a plinth all around keeps as dry as my hat.

Supposing 'tis spring, and you've robbers, you think,
Close the hives at eve with perforated zinc;
Next morn, if robbers are about quite thick,
Sprinkle them well with powdered carbolic,
Then, when they have gone their reception to brood o'er,
Put a zig-zag entrance to each hive door.
But I wouldn't advise—'twould worry my life,
To stand by and kill each thief with a knife.

Should tomtits kill bees, as truly 'tis said,
The safest remedy is one ounce of lead
Administered sharply with powder so fine,
And an unerring aim, as straight as a line.

If hive sides be stout, and entrances narrow,
Neither mice nor fat toads will cause any sorrow.

Queen-bees too will die, they cannot survive,
If attacked by disease destructive of life;
And this is a fact, not learned nor wise,
And therefore should cause not the least surprise.

If moth are in hives, your bees are not strong,
Get your hive full of bees and the moth will be gone;
Old, musty, house carpet for quilts, you will find,
Afford fine nurseries for all the moth kind.

A chalk line for ants is nothing but gammon,
Might as well stop a whale with a rod used for salmon.
Tho' I've ants all around, I ne'er found any wrong,
If only my bees are kept thoroughly strong;
But should you by chance come across a big nest,
A pot of boiling water will lessen the pest.

I prefer legs to hives, and have them made square,
A foot or so from the soil, makes the bees more secure,
As often when hives are close to the ground,
A retreat for ants, slugs, and other insects is found.

The number of stings one would have to endure,
To make him sting-proof, is rather obscure,
I should say five stings a-day, for three weeks or more,
Such as I've had to go through, would effect a sure cure,
Whereas one sting would formerly close my eye for a day,
Ten now make no difference, so I say sting away,
But nine times out of ten, the stinging is due
To bungling hands or the fear that you shew.

The subscription you pay to the B. B. K. A.
Is just five shillings, so post it away
To Mr. J. Huckle, King's Langley, Herts,
And then you can have the advice of experts;
And if you're in doubt, and want their advice,
I'm sure you won't have to write to them twice.

Now, Mr. Editor, my task is done,
Will *you* kindly answer the last question.
But perhaps you think—I feel rather sure—
That Mr. R. Routh is not such a bore
As your humble servant, a stranger to all,
JNO. O. CLEMMOW, of Ladock, Cornwall.

[We have been not a little surprised at the number of poetical replies we have received to Mr. Routh's inquiries. We think, however, that the above, which was the first to come to hand, will be sufficient for our readers. Will our correspondents, A. E., W. W., G. W., F. L., J. L. R., J. H., T. M., and E. C., accept our thanks for the trouble they have taken and our regrets that we have not been able to avail ourselves of their appreciated versifications?—ED.]

Foreign.

SWITZERLAND.

EXPERIMENTS CALCULATED TO ASCERTAIN THE WORK AND DEVELOPMENT OF BEE-COLONIES BY MEANS OF HIVES PLACED ON SCALES.

We have more than once pointed out the usefulness and interest that can be derived from a study of the variation in the weight of hives permanently kept on scales, particularly when the observer also notes, along with the changes in weight, those of the temperature, atmospheric pressure, amount of rain fallen, clearness or otherwise of the sky, changes and directions of the wind, the flight of bees, and, at the proper seasons, the flowers and trees furnishing a pasturage for bees. The *Bulletin* has occasionally reported extracts of our experiments, or of those made by some of our friends, and those who attended the 'Concours' held at Lucerne in 1881, or visited the Zurich Exhibition of 1883, will doubtless remember Mr. U. Kramer's beautiful graphic pictures, embracing several years.

At Mr. Kramer's suggestion, a few Swiss bee-keepers undertook similar observations, simultaneously, in the winter 1884–85. Two of these, viz., Dr. R. Kubli, of Grabs, St. Gall, and Mr. D. Reber, of Dreilinden, St. Gall, who had been able to continue their experiments throughout the year 1885, have published the results obtained, in a pamphlet of sixty-three pages, containing clear and minute explanations. This book, called, *Beitrag zur Arbeitsleistung und Entwicklung der Bienenevölker*, gives not only the historical progress of two stocks, with notes on the meteorological observations, on the flora, &c., but the authors have included many other interesting details, as well as remarks upon the construction and dimensions of hives, and the mode of using them.

They have divided the year into four seasons. The first, or the dead period, embraces the months of November, December, and January; the second period is that which precedes the season of early activity, say, February, March, and nineteen days of April; and the third, or the harvest period, comprises ten days of April, May, June, and July—that is to say, 103 days, during which the scales had shown increases of weight interleaved with decreases; and, finally, the fourth period, consisting of the months of August, September, and October.

	At Grabs.	At Dreilinden.
Net Weights from	Kilos.	Kilos.
April 20th to 30th ...	8·640	0·570
May 1st to 31st.....	0·850	6·570
June 1st to 30th	31·900	12·300
July 1st to 31st.....	6·370	14·000
	47·760	33·440

It must be remarked, however, that the colony at Dreilinden threw off a swarm on the 9th of June weighing kilos. 2·720, which gathered kilos. 26 of honey. The heaviest day at Grabs was the 26th of June, when the scales registered kilos. 3¼, and at Dreilinden the 12th of July, which registered kilos. 2·200.

According to this report, the flowers which predominated at Dreilinden, as well as at Grabs, in April, were those of the cherry-tree, the cardamine, and the dent-de-lion; in May, the dent-de-lion and the apple-blossom, with the fir-tree towards the end of it. This fir-tree lasted till about the 8th of June, when there appeared the raspberries, white clover, and various other honey-producing plants. In July, the bees worked mostly on this white clover, lime-trees, and on a few other trees. The first hay was cut between the 10th and the 24th of June.

One of the studies one of the above-named gentlemen made was to ascertain how much a colony consumes in one year. During three of the periods the scales gave precise figures, but in the harvest season the registrations were incomplete for those days when no honey was brought in, and they had to estimate the evaporation of water issuing from the stored honey.

Mr. Reber's register gave the following figures:—

	Days.	Kilos.		Grammes.
Winter period.....	90	2·210	average	25
Period preceding harvest	80	5·205	„	65
Period after the harvest...	92	5·043	„	55
		12·458		
Period of harvest	103	36·940	estimated average	360
	365	49·398, or, say, 1 cwt.		

M. Kubli had found in round numbers:—

	Kilos.		Grammes.
Winter period.....	3·000	average	33
Period preceding harvest	7·500	„	93
Period following harvest	5·500	„	60
	16·000		
Harvest period	30·000	„	291
	46·000		

Here, at Nyon, we have no record of weights representing the whole season, and must therefore content ourselves with an approximate estimate. For the winter season our scale has given us kilos. 1·800. Sundry deductions made in April have given us 200 and 250 grammes per day; in May and June we were able to calculate a daily consumption of from 450 to 500 grammes; and about 50 to 60 kilos for the whole year. But our hives are much larger than those at St. Gall and our colonies are considerably stronger *in the harvest season*. The hives at Dreilinden measure 54 litres; those at Grabs, 70 litres. The body of our Dadant hives measures 66 litres, and each super 34 litres; and at harvest time our colonies occupy, besides the body, one, two, and even three of these supers, which brings up the total to about 100, 134, and 168 litres—occasionally a fourth super is required. As the harvest does not last here, at Nyon, more than twenty or twenty-five days, our course is well defined: we must stimulate breeding as much as possible in order to dispose of a strong army of workers at harvest time, even at the cost of a great consumption.

Now in localities where harvest is not limited to twenty-five days, but spread over 103, like at St. Gall, would it be just as advantageous to stimulate brood-rearing? This inquiry can only be answered by experience, but we are inclined to give an affirmative reply. A worker *that can participate in the harvest* will produce more than she will cost for rearing and keeping.

If the flora is poor, and the yield of honey limited, reduce the number of your colonies by half, and have them all the stronger in the same proportion at harvest time. You will then have the largest amount of honey brought in, as the number of outdoor workers will be all the greater in each hive, and you will have only half the number of bees to keep during the dead season. In conclusion we keep our bees from nine to eleven months in idleness, figuratively speaking, in order to have harvesters during over the remaining months. If ten colonies, able to develop themselves freely, can produce as many and more workers than twenty kept in small hives, it becomes advantageous to stimulate brood-rearing. The cost is less, so it is the room occupied by the bees, and the trouble is not so great. The principal conditions for the full development of a colony are, other things being equal, large combs and roomy hives. In winter, as well as in autumn, our stocks do not consume more than those

at St. Gall. It is mostly in April, May, and June, that the consumption of food is greatest, but at this season each reared bee is a producer.

The book in question contains a communication from Italy which, we think, will bear out our theory, as it originates from a locality where honey is scarce, and bees, by reason of their being kept in small hives with small combs, do not obtain their full development.

This question of development of colonies in its relation with the size of hives is an all-important one. Such competent and conscientious apiculturists like Mr. Kubli and Mr. Reber are in a favourable position to find a solution, and we earnestly wish they would give us the benefit of their experiments. But let us return to their interesting book.

The authors compare their results; examine the influence of the three principal factors, viz., flora, weather, and method of cultivation, not forgetting the style of hives used and the race of bees, and then try to arrive at results. We will limit ourselves to a few of the weak points to be noticed in their methods, viz.:—1. The hive at Grabs had thin walls and was not suffieiently protected against the cold. From November to end of March the consumption had been kilos. 7·400, whereas in that at Dreilinden, which was better protected in this respect, it was only kilos. 5·245. 2. Its interior arrangements, separating the brood-nest from the store-chamber, leaving only a small hole for communication, was a disadvantage. 3. The slinger was not brought into requisition often enough, or else the hive, notwithstanding its seventy litres capacity, was yet too small. On the 28th June, at the height of the harvest season, bees were hanging out.

With its fifty-four litres capacity the hive at Dreilinden was even more defective as regards room; the extraction of honey was insufficient and a swarm had issued. A queen requires, says Mr. Reber, a large number of cells to develop her brood in, and workers require a great many too, to store their honey in and to evaporate the excess of water which it contains. These authors do not consider swarming advantageous for the production of honey. There would be several other subjects in the pamphlet which might be pointed out, but we think enough has been said to show the usefulness of their undertaking, and we tender them our thanks on behalf of our bee-keeping fraternity.—Translated from the *Bulletin d'Apiculture de la Suisse Romande* for December, 1886.

ITALY.

According to the *Apicoltore*, Mr. G. Kandratieff, Director of the Imperial Opera of St. Petersburg, has availed himself of a short visit in Italy in order to make an inspection of the most important apiaries. Mr. Kandratieff is the proprietor of two large apiaries in Russia, one of about 300 stocks in the Caucasus and another of about 200 in St. Petersburg. Notwithstanding the great difference of climate between the Caucasus, where winter is almost unknown, and St. Petersburg, where it is both most severe and long, Mr. Kandratieff obtains, it appears, almost the same amount of profit in proportion from the one as from the other. It appears that Mr. Kandratieff is a perfect master of the Italian language and a constant reader of the *Apicoltore*, which has been his guide in his apicultural pursuits.

The same contemporary reports that Signor Sartori has contributed exhibits to a great bee show held this month at Vienna, with the main object of establishing a honey market for the convenience of the inhabitants of the Austrian capital and a means of facilitating the sale of honey now being produced in that country.

FRANCE.

The Société Centrale d'Apiculture et d'Insectologie of France held a meeting in Paris in March last. In the course of the proceedings it was stated that the Insect Exhibition would be opened on the 27th of August, and remain open until the 28th September next.

M. Savalle suggested that a committee of three members be appointed to visit and report upon the apiaries whose owners desired to compete at that Exhibition in the special class for '*well-managed apiaries*,' but M. Ramé pointed out that such a course as that suggested by M. Savalle would involve the Central Association in greater travelling expenses than could conveniently be afforded, whereupon M. Hamet moved that the examination of such apiaries be entrusted to the local Societies near which the apiaries are situated. It was further ruled in connexion with this subject that such visits must be made before the 20th of September, to the end the jury may have time to examine the reports and arrange for the awards. Rules as to the manner in which the said reports are to be tabulated were drawn up and approved. As regards apiaries within a certain radius of Paris, a Committee of Inspection, consisting of three members, would, however, be appointed, particularly as in the course of the discussion M. Ramé remarked that there would be no difficulty to obtain from the Railway Companies a reduction of 50 per cent upon the rates for the members of their Commitee of Inspection.

Subsequently the conversation turned upon an insect submitted by M. Crevoisier, of Havre, found upon his bees. This gentleman was of opinion that the presence of this insect caused a decrease in the numerical strength of his colonies. The insect was thereupon submitted to examination by means of a magnifying glass, and pronounced to be a specimen of the *Braula cœca*, and the general opinion of the meeting was that although the presence of these insects in large numbers was undesirable, yet it did not constitute an infectious disease, nor was it fatal to a stock.

Afterwards, in the absence of M. Bourgeois, who had failed to be present as promised, M. Hamet pointed out a novel application for a steam wax-melting oven, which he demonstrated can also be used as an economic incubator. It transpired in the course of conversation that at about the end of February last M. Bourgeois placed about twenty poultry eggs in his steam wax-melting oven, with the result that a dozen chickens were thereby obtained. M. Bourgeois fully believed, however, that had the temperature been more steady and certain precautions taken, which had been overlooked during his absence from home, every egg would have been successfully hatched.

A general conversation upon sundry other matters brought a pleasant meeting to a close.

NORTH-EAST OF IRELAND BEE-KEEPERS' ASSOCIATION.

The Annual Meeting of the above Association was held at 41 Waring Street, Belfast, on Friday, the 22nd ult., at three o'clock. There was a large attendance of members. Among those present were W. J. Johnston, J.P., F. D. Ward, J.P., Rev. H. W. Lett, M.A., Richard Niven, W. H. Phillips, W. E. Best, A. Morris, E. Malcomson, S. Cunningham, G. Hull, G. M'Neill, T. M'Henry, S. Refausse, &c. &c. The Rev. H. W. Lett, M.A., presided.

The Hon. Secretary (Mr. Paul M'Henry) read the Annual Report, which was of a very satisfactory character. The Financial Statement was equally satisfactory, showing the Association to be in a healthy condition. Mr. M'Henry stated that Sir John Lubbock, M.P., had consented to become an honorary member of the Association,

Mr. A. Morris, in moving the adoption of the Report, referred to the efforts the Canadians were making to advance bee-culture, and pointed out that they looked to this country as a market for their honey. He pointed out the difficulties which they had to contend with, and urged on bee-keepers the necessity for renewed exertions. He considered if bee-keeping could be made a profitable

investment that it should receive more attention than it has in the past in this country.

Mr. F. D. Ward, J.P., in seconding the adoption of the Report, said although he only kept a few hives he believed bee-keeping could be made a profitable pursuit; he expressed the pleasure it gave him to be present at this year's annual meeting of the Association.

It was resolved that a Show be held this year, the 19th of August being fixed. A Committee was then appointed to carry out the arrangements.

A ballot was then taken for a bar-frame hive, presented to the Association by Mr. Niven, and Mr. W. J. Johnston, J.P., was declared the winner.

In the evening a Conversazione, under the auspices of the Association, was held in the Museum, where there was a large attendance of members.

Tea having been partaken of, the Mayor (Alderman J. H. Haslett, J.P.) took the chair and delivered a brief address, in the course of which he referred to bee-keeping as an industry, and urged its being followed more by small farmers as a means by which they might augment their incomes. He also spoke of the efficient manner in which the Association was creating an interest in humane bee-culture and to the success which had attended its efforts.

The Rev. H. W. Lett, M.A., gave one of his very instructive lectures, which was listened to with much attention. In the course of his remarks he drew attention to the necessity of members trying to make a market for their honey in their own particular neighbourhood, and gave some instances which came under his notice where this had been particularly successful. He also drew attention to a plan which had been adopted with success in some parts of England, viz. of allowing the bee-tent to be erected in the grounds of some of the local gentry, on the occasion of *fêtes*, &c.

Mr. A. Morris gave the result of his experience, and advocated bee-keeping to all those who had facilities for keeping them.

The Chairman stated that he would be glad if any present, who were in doubt about their bees or management, would make use of the question box which had been provided, and any questions asked would be replied to before close of meeting.

A number of microscopes were exhibited during the evening by members of the Association and their friends, and the slides illustrating the anatomy of the honey-bee and other insects were in great request. Mr. Smith exhibited some dead queens, workers, and drones, also some specimens of comb, with queen-cells, &c. &c. The Rev. H. W. Lett, M.A., exhibited the sheets published by the B. B. K. A., and described the same. Mr. W. Lonsdale, Lurgan, and Mr. Morrow, Banbridge, sent bar-frame hives of approved construction, which were explained by Mr. S. Hill and Mr. Paul M'Henry during the evening. Appliances were exhibited by Mr. Lonsdale and the Belfast Nursery Company, who exhibited some sections, glazed after the style advocated by W. J. Stanford, Esq., in the Irish Bee-keepers' Association Pamphlet.

A vote of thanks was passed to the ladies who had acted as tea-makers.

The customary votes of thanks being passed, brought a very enjoyable evening to a close.

Long Words.—*Apropos* of the long names in your last issue, we have in our trade, Clark's Hoplemeuroma and Neurasthenipponskelesterizo, both of which by long practice we can 'speak trippingly' off the tongue.—Drugo.

De Quibusdam.—In my last I did not write that frames in the body hive will 'vary' with the weight of honey, but that they will 'sag.' I have since had an example. I took out a filled frame for the benefit of a hive the supplies of which were getting short. The top bar was of three-eighth stuff, but in the centre it had dropped one-quarter inch. What prospect then is there of our being able to preserve these exact bee-spaces so carefully provided?—C. R. S.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Upper St. Martin's Lane, London, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. Huckle, *King's Langley, Herts (see 2nd page of Advertisements).*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

THE NEW RACES AND THE BEST MEANS OF INTER-BREEDING AND SECURING FERTILISATION.

Hybrids, Blacks, &c.

[935.] We now have to consider the disposition and working qualities of the various crosses and the best means of ensuring the production of docile bees, without detracting from their value as honey-producers.

As it is intended to make use of the native race it will be well to first consider what they are capable of. Nearly all bee-keepers have a certain partiality for blacks, and it cannot be wondered at when we come to think of the beautiful colour of their comb-honey. They are also less inclined to swarm than any other kind, but the great reason for this is that the queens are not very prolific; and, in fact, it would be a serious error for any one to attempt to build up a large apiary with these bees and expect to make a fair profit at the same time, unless in an exceedingly good district.

Though they do not winter so well as Carniolan bees, they have great conservative energy, and are capable of maintaining a higher temperature than any. Hence the reason why they are such good wax workers, and why with comparatively small numbers a colony of blacks readily takes to the supers.

On the whole (in their purity), they are not noted for the best of tempers, and besides being behind the foreign varieties in breeding they discontinue storing in the autumn, while the more prolific kinds continue to gather heavily.

Many years' experience has shown me that to obtain thoroughly reliable workers producing comb of the first quality, one must take a black queen as a base to start upon, and crossing with drones of either the Ligurian, Cyprian, or Carniolan races, the latter by preference. We then dispose of the objections to the pure black, while retaining their good qualities. Though some believe they have cause to differ as to Cyprians, I have found the drones of each variety named carry a mild disposition to the hybridised workers. Indeed I have always found the drone to impress the disposition of the mother colony upon his progeny. Black drones should be rigidly excluded, as it is these crossing with foreign queens which have caused so much to be said against hybrids. Such a cross is of the worst temper imaginable, and though it may be pleasing for a bee-keeper to raise queens from the valuable one he may have purchased, unless he can depend upon getting them purely mated he will do far better to raise plenty of drones from such and improve his natives, and so raise bees that he can easily handle.

If a good working cross is desired while one wishes to have colour as well, then take a Carniolan queen and mate her daughters to Cyprian drones. Though springing from a race not actually having yellow bands, this first cross will in many cases produce workers infinitely more beautiful than Cyprians themselves, as they have all the yellow and a great deal more down about them. In

some instances the first cross varies from Carniolan to Cyprian forms, and a second cross with Cyprians would be desirable to get good colour.

If comb-honey be the object, however, colour from Cyprians must not be sought, as the nearer you approach to them the darker will be their cappings. It would be better in that case to cross once into Cyprian and back to Carniolan again, if blacks are not used; or begin on Cyprian queen and cross twice to Carniolan drones, the workers leaving nothing to be desired, putting colour out of the question.

With Ligurians proceed in the same way, crossing with Cyprian drones for colour, though, of course, the workers resulting therefrom would not give good comb. Carniolan or black queens with Ligurian drones would, however, give excellent bees for white comb-honey where one will look only at the business point.

The crossing of two or more varieties will always give an improvement in the working capabilities of the bees, the main point being to make certain that the drones used come from good-tempered, and otherwise desirable stock. This is even more important than the disposition of the queen's colony.—S. Simmins.

BEES AND RIPE FRUITS.

[936.] I should very much like to obtain the opinion of bee-keepers on the point which I brought forward for discussion at the last Conversazione of the B. B. K. A. that is:—Do bees commit any damage to ripe fruit? I must say that it is with considerable reluctance that I hold the opinion that they do. Until last season I 'ran with the stream' of other bee-keepers and scouted the idea of such a thing happening, but, alas! my ideas received a sudden check, and I found my pets busily engaged *piercing the skins* of peaches and revelling on the sweet juice. At the Conversazione these opinions of mine were—Well, I was considerably 'sat upon,' but having recovered from the effects, I have risen again to the occasion.

Most of the arguments against such a bad practice on the part of the bees were based upon the assumption that their jaws were not strong enough to make a hole through a fruit skin as tough as that of the peach. I must emphatically negative this; even our friend, the Chairman, gave his opinion that they *could* pierce the skin of the raspberry, so partially negativing the idea that they could so pierce that of the peach. Has any bee-keeper placed paper in his hive? If not, let him do so, the bees will soon cut it up into small pieces and carry it thus outside. How about gnawing clean through the tapes after transferring? I reckon there's tougher work in these two cases than with ripe peach-skins.

I now give an extract from *Gleanings* of the 15th April, 1887, from the pen of A. I. Root:—'But if there are cracks where the bees can see through and smell the feed, they will often (at least in our apiary) bite away the solid wood until they can squeeze through where cracks and openings are.'

Mr. Raynor also observed that the jaws of bees were much weaker than those of wasps. I am well aware of this, but that is no argument that it is impossible for them to break the skin of other fruit than raspberries. A gentleman gave it as his opinion that if I had taken a magnifying glass I would have seen a small puncture presumably made by a wasp beforehand. My eyesight is sufficiently good to detect the mark made by the first 'chop' of a hungry wasp's jaws, in several instances where I saw the bees commence gnawing the skin there was no such mark. I am well aware that the bees would sooner go to the part of the fruit that had been damaged beforehand, as a larger amount of saccharine matter would be found there.

I am also aware that the infinitesimal amount of damage—first damage I mean—committed by bees is as a grain of sand in a bushel compared with that of wasps; but this does not alter the truth of my assertion that bees *can* pierce the skin of peaches and some other fruits. I do not in the least wish to be dogmatic, but I feel confident as to their capabilities in this direction, if not in all cases their desires. I have written this letter, not for the purpose of publishing our pets' failings, but in order to lay before those who I find frequently complain of the presumed damage done to their fruit by the bees, the fact, that although they may commit a very small amount, the wasps are the chief culprits. If one entirely negatives their assertions of this damage you are simply laughed at as one not knowing *much* about bees.—W. B. Webster.

COUNTY EXPERTS.

[937.] Poor experts! foul-brood will be to you as an incubus like unto the bees. How I should like to meet the County Expert that doesn't know foul-brood when he sees it! What lucky experience! (?) But I know it to be a fact and can bear out 'U. H.'s' assertion. It is but a short time since I examined a colony that had been pronounced by a county expert (unqualified) quite healthy and flourishing, that was reeking with foul-brood; I pitied the owner who was elated at the expert's (?) report, but desired my opinion before giving vent to a very loud hurrah! The expression on her face when I showed her hundreds of foul larvæ, was indeed grievous. But, 'U. H.,' do you really think that one who has passed a second-class examination is as ignorant as this? If so, who are the 'examiners?' I remember being closely questioned upon this matter at each of the three examinations that I had the pleasure of 'going in' for. The fact is, it is only a few of our counties that have properly qualified experts, and I take it that in each case they should hold, at least, second-class certificates; I do not mean to assert that there are not as good bee-keepers without a certificate as with, but such certificate is a guarantee as to their ability. District secretaries should, also—where they are presumed to give advice—hold third-class certificates; these are easily obtainable by any one having a good knowledge of modern bee-culture.—W. B. Webster.

GOSSIP.

[938.] It is a long time since I trespassed on the columns of the *Bee Journal*, and if I do so now I shall venture to put the blame on the present esteemed Editor. Last autumn, when I was 'doing' the Colinderies, I chanced to stumble into his company in the Canadian honey department, and will now offer my humble apology for interrupting his conversation with the gentleman in charge—Mr. M'Knight, I should presume from what I gather on page 170. Of course we were strangers, and I had to introduce myself as an occasional correspondent sometime before he became Editor, when he was kind enough to invite me to do so again.

As I have paid several visits to Canada, and have travelled the country from Quebec to the Falls of Niagara, I was naturally interested in seeing such a splendid collection of honey. My first visit was in 1858, my last in 1875, but during the whole time I never remember to have seen a *single honey bee*. I remember in 1873 inspecting a vast quantity of hives in the patent department at Ottawa, but at that time anything past the old straw skep was new to me. What a change in both countries in a few years! I hardly know which I am most afflicted with, the bee mania, the bird mania, or the wasp mania, all equally interesting in their way.

I should not have ventured to take up the pen had I not noticed the interesting article of 'G. J. H.,' page 161. I am very pleased to say my experience with the birds

mentioned (all of which are residents with me) differs from his. I can honestly and faithfully declare that I have never been able to detect a single bird killing my bees. That the great tit is fond enough of bees I am well aware, but they only act as scavengers in picking up chilled or dead bees. Did 'G. J. H.' ever try the effect of feeding the tit family? It is an old saying, 'If thine enemy hunger, feed him.' Give them a few bones to pick, or a lump of scrap suet suspended to peck at. It will afford amusement and pleasure, and they will amply repay for the little attention in destroying thousands of insect enemies in the garden, which I can vouch for by close observation. Again, there is no need to use powder and shot to destroy the tits, and probably fruit trees into the bargain, they will both build and roost on anything of a convenient size; I have taken them to lectures many a time in old boots, boxes, tea-pots, &c. There is not a 'darned' bit of pride in their nature, and they will put their trust in you and not be afraid; but *do try feeding* before killing them. It would occupy too much space to enter into the habits of each to relate the good they do in other ways.

I have only met with one queen-wasp so far this spring.—Jas. Hiam, *The Wren's Nest, Astwood, Redditch.*

THE WOIBLET SPUR EMBEDDER.

[939.] I have for a long time used wired frames, and have pressed the wire in the wax with the point of a knife; and although none of the wire has been covered with wax the queen *has* laid in every cell. Having seen Hughes' Embedder Spur advertised in the *B. B. J.*, I sent for one, and I was highly pleased with its simplicity and also in the way it did its work; first warming the sheet of foundation in the sun, or by the fire, I could embed the wire with great ease and very quickly. I recommend my brother bee-keepers to give it a trial, and I think it worthy of high praise for its cheapness as well as for the way it works. By its means bee-keepers can save themselves much labour as well as time.—T. S.

FOUL BROOD.

[940.] I am much obliged to Mr. Lyon [902] for his answer to my query in *B. B. J.*, April 21, respecting foul brood in Warwickshire. The expert of that county has also kindly written informing me that the district is quite clear of this disease. Allow me to express a hope, however, that Mr. Lyon will not too hastily infer that a district is infected because several bee-keepers have ordered bottles of 'cure.' I, for one, obtained a bottle so as to be forearmed in case the disease should appear, and doubtless hundreds of others have done the same. I am glad to say I have never had occasion to use it, and trust I never shall, but it is a satisfaction to know that a remedy is close at hand in case my bees ever require it. As may be seen on reference to former advertisements, when I buy swarms I stipulate that the seller's district shall be free from foul brood, and also that his apiary has *never* suffered from the disease. It is surprising how very many offers have fallen through owing to this latter clause. It is impossible to be too careful to avoid introducing this destroyer to a hitherto clean country. As an example, I may say I know a man who introduced an alien queen two years ago. Very shortly foul brood appeared, and in spite of all the many remedies, he was compelled to practically destroy his apiary of forty stocks. Unfortunately the mischief did not end here, for the infection was carried by robbers, &c., to the neighbouring cottagers' skeps, and thus the circle of an infected area ever grows larger unless prompt measures are taken for its eradication.

Mr. 'Amateur Expert' has a hearty laugh in last *B. B. J.* over my query, but surely it is a matter of grave importance, worth considering. I had no reason to suspect any disease in Warwickshire, and had in fact examined the stocks offered to me a year ago, but as my friend does not personally manage his bees, I applied to the editor of the *Bee-keeper's Adviser*, and, as I have always experienced in all cases of difficulty, received through his hands the desired information.—Edward J. Gibbins, *Neath, April 28.*

CAN BEES HEAR?

[941.] Several letters have recently appeared in *B. B. J.* as to whether 'Bees can Hear,' to which I say Yes. I have been fond of bees over fifty years and a close observer of them. May I give three reasons for saying they can?

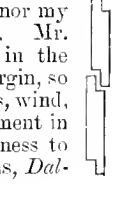
1. Last June I happened to have my head just in front of a Ligurian stock. I was very close and was looking into the entrance; there were probably about 100 bees sitting outside, *not in touch of those inside.* All at once I heard something like a hissing noise from inside the hive. The 100 outside seemed to hear this sound at the same moment that I heard it; they were on the move at once; a few seconds more and a fine swarm was rolling out of the hive.

2. Take a swarm into a straw skep when they are all in quiet. Shake them out in a lump on a cloth, stand the skep (with room for them to crawl into it) a few inches from the lump, then take a tablespoonful (or more) of bees, lay them down at the entrance of the skep, so that they are an inch or so from the bulk (or lump of bees), and there is no continuity of touch. Now if this spoonful of bees commence to enter the skep they will set up a humming noise, whereupon the whole bulk seem to hear it at once, turn toward the skep, set up a humming and march straight for the same skep. Or try the same with a driven stock, then put down their own hive bottom board and all take a spoonful; put them on the alighting-board and you will get the same result, perhaps more instantaneously.

3. Eight or nine days after the issue of a first swarm go to the stock hive at night, place your ear against the back of it; and if they are intending to throw off a second swarm you will hear the well-known tooting or shouts of defiance from two or more queens. If you take time you will sometimes find a considerable number of minutes quite quiet, then one queen sets up tooting her note of defiance, and directly she ceases another queen from a distant part of the hive answers her back. I say they can hear one another and bandy the well-known tooting or note of defiance from different parts of the hive.—David Ovenden, *Penge, S.E., 18th April.*

HIVE CONSTRUCTION.

[942.] I beg to inform 'F. L.' that I too, for more than ten years, have had hives without plinths, the same as he describes; but neither 'F. L.'s' nor my own are interchangeable storifying hives. Mr. Buchan was the first to use a *break-joint* in the latter named hives as represented in the margin, so as to make all the hive-joints without plinths, wind, and water-tight. For this original improvement in hive-construction he ought in common fairness to receive the honour due for it.—Wm. Purves, *Dalkeith, N.B. 18th April.*



SPARROWS AND BEES.

[943.] In *B.B.J.* (906) 'G. J. H.' gives his useful experience of 'birds eating bees.' May I add my London experience?

For five years, ending last February, I kept bees at Blackheath. My neighbours encouraged the London sparrow in a large growth of ivy, and during the entire

breeding season these sparrows committed havoc amongst my bees. They seemed to almost entirely rear their young with my poor slaughtered bees. The female sparrows seemed every year to commence this slaughter, and then the male sparrows seemed to act under the direction of their wives and set at this slaughter with a vengeance. These impudent sparrows would select a twig opposite a hive; they would settle on this twig, from thence fly straight at the hive-alighting board, take a worker-bee, settle on the ground, peck it to death quickly, carry it to their young, and be back in two minutes for another. Occasionally they would vary the diet with a drone.

Of all the birds in the air, I believe the London sparrow is the greatest enemy to bees kept in the suburbs.—David Ovenden, *Penge, S.E., 18th April.*

WIDTH OF SECTIONS.

[944.] Seeing that there is a good deal of controversy in the *B. B. Journal* respecting the best width for sections, I should like to state, through the medium of its pages, that I believe I was the first to import and recommend the use of the narrow section into this country. As many readers of the *Journal* know Mr. Froucrook took out a patent for the one-piece section with bee-ways and comb-grooves. Apart from the idea not being original, his specifications were so carelessly worded, that the sections could be manufactured in two, three, or four pieces, or in one, leaving out any one of the particulars mentioned, *i.e.*, the comb-groove, &c. In the spring of 1883, Mr. Froucrook threatened to prosecute those who had manufactured and used any other one-piece section than his own. About this time I imported from Mr. Lewis the $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{3}{4}$ section in one and two pieces. I quote the following from my catalogue, 1883: 'They are in two pieces and can be had either $1\frac{3}{4}$ or 2 inches wide, but the former are to be preferred, as they do not require separators when comb-guide is used, and there is no escape of heat, or space between separators for bees to propolise. The bees are said to ripen and seal their honey faster in them.'

The same year the 'Royal Show' was held at York, and I entered for competition in the 10*s.* class a hive fitted with these narrow sections with close top, and I dare say Mr. Hooker will remember his remarks to me about them,—remarks not in their favour; for when I praised them, he seemed indignant at my opinion of the article: I *did* praise, having tried and *proved* their value, besides having heard them highly spoken of by many of my customers to whom they had been supplied. I believe these narrow sections give satisfaction in every case.—E. C. Walton, *Muskham.*

SUGGESTIONS.

[945.] The early spring months are very trying and often disastrous to the lives of our dear little bee friends. The outer surroundings of the hive have an important bearing on what may be termed the minor essentials to successful bee-keeping. Given a good aspect I would strongly deprecate allowing grass to grow near the hive in any shape or form, but if allowed to grow long and feathery, it is not only a great nuisance to bees in the summer months, but in the early spring is very destructive to bee life; in hurrying home from passing storms many drop in the long damp grass—get chilled—never to rise again.

Again, I have often noted alighting boards with a too sharp slope smoothly planed and painted, on which the bees cannot get foothold. I have grieved to see the heavily-laden bees after dropping on such alighting boards either roll off, or on the first attempt at walking make, not a step forward, but two backwards. To remedy this evil take a coarse rasp, such as farriers use, and draw the teeth longitudinally from end to end. An ordinary pocket-knife with a sharp point will answer the purpose tolerably well by scratching the surface rather deeply.—James Lee.

FROM SKEP TO BAR-FRAME.

[946.] Being a bee-keeper on a small scale and a constant reader of the *British Bee Journal*, I thought I would write you a little about my experience as regards bees.

I have kept bees here for about ten years, both in straw skeps and in plain boxes home-made. To get the honey I used to sulphur them in autumn, till last spring, when our expert came here and put two of my stocks from straw skeps into a bar-frame hive; and during last summer I drove all the other stocks myself and placed them in bar-frames. Considering the season, I did very well with them, and find the bar-frame hives much better than straw skeps and much more profitable; but I think bees would winter better if the roofs and outside walls of the bar-frame hives were made thicker. The walls, say, 1 in. and roofs $\frac{3}{4}$ in. thick, of good, sound, well-seasoned deal and kept well painted with oil paint.

I think if bees were kept warm and dry during the winter we should not hear any more of foul brood, which I fancy is caused by having such thin boxes and getting damp inside. I packed my boxes between walls with hay chaff, and on the top I have one or more pieces of thin red woollen carpet for quilts with a good heap of chaff on the top. Being at my work close to my cottage I have time during the winter, when I get a nice warm day, to remove the roofs of hives and shake up the chaff if anyway damp. If the roofs feel damp inside I take them into my cottage and dry before the fire. I have not lost one stock this winter, and I have nine stocks now very strong, and two weak stocks; and the first swarms I get this season I shall bundle, queen and all, into my weak stocks to strengthen them. I intend doing away with chaff packing between the walls of hives next winter, as I think the bees would winter better with the air passing between walls.

I hardly ever get stung, as I never give my bees much chance to sting me. I bought a yard of strong black net and made it into a bag, which I put over my felt hat and tuck inside my vest; for the hands I have a pair of soft leather gloves, and on the end of the gloves I have the top part of a thick pair of old woollen gloves sewn on fast, which I draw well over an old coat right up to my elbows. Being so well protected I am the master of my bees any day, and do not want such nostrums as apifuge or sting-preventer, as my simple preventer is enough without those moonshines. About here people use washing blue, onions, turps, &c., those things are no doubt good in pickle, paint, and washing water, but for stings they are all bosh. Bees cannot abide me, and would push their tails into me very quickly if I were not in armour; and in my situation I have no fancy to go about with swollen face and black eyes, making me look as if I were related to Tom Sayers.—R. G., *Coldra, Caerleon, Mon.*

Poisonous Honey.—Much has been written upon the poisonous effects of certain plants, sometimes upon the honey, sometimes upon the bees themselves. Every schoolboy must remember the account given by Xenophon of the effect produced upon the Ten Thousand by the honey in the neighbourhood of Trebizond. The soldiers suffered in proportion to the quantity they had eaten; some seemed drunken, some mad, and some all but died. (*Anab.* iv., 8.) This quality in the honey has been referred to by Pliny and others to the poisonous nature of the rhododendron, which abounds in those parts; but from inquiries which we have made from

Dropmore and other spots abounding with this shrub, we cannot learn that any difference is perceived in the honey of those districts, or indeed that the common bee is ever seen to settle on its flowers. If the Kalmia latifolia be a native of Pontus, the danger is more likely to have arisen from that source, as the honey derived from it has been known to prove fatal in several instances in America.

Bees Used in Warfare.—A small privateer, with forty or fifty men, having on board some hives made of earthenware, full of bees, was pursued by a Turkish galley manned by 500 seamen and soldiers. As soon as the latter came alongside, the crew of the privateer mounted the rigging with their hives and hurled them down on the deck of the galley. The Turks, astonished at this novel mode of warfare, and unable to defend themselves from the stings of the enraged bees, became so terrified that they thought of nothing but how to escape their fury; while the crew of the small vessel, defended by masks and gloves, flew upon their enemies, sword in hand, and captured the vessel, almost without resistance. It must strike the reader how well furnished this vessel must have been to afford on the moment masks and gloves for forty or fifty men. The following receipt to disperse a mob may, perhaps, be found useful. We have heard of a water engine being effectively employed in the same service. During the confusion occasioned by a time of war in 1525, a mob of peasants assembled in Hohnstein, in Thuringia, attempted to pillage the house of a minister of Eleude, who, having vainly employed all his eloquence to dissuade them from their design, ordered his domestics to go and fetch his beehives and throw them in the middle of this furious mob. The effect was what might be expected; they were immediately put to flight, and happy to escape unstung.

Queries.

[947.] I have been making my own comb-foundation, but have had much trouble through its being too brittle, and in some cases breaks before I get it off the block. Will you kindly tell me how to make it more flexible and better to work?—John Dunning.

Echoes from the Hives.

Hartlip Vicarage, Sittingbourne, April 18th.—Do you know that a Honey Company in Liverpool is selling *excellent* 'Californian' honey at 6*d.* per lb., carriage paid to this place. I am feeding my bees with it, *outside* their hives, as it has been much too cold as yet to handle them. This is a glorious day for them and they are working well, but what of to-morrow?—let Aix-les-Bains say, perhaps *snow*.

South Cornwall, April 22nd.—It has appeared useless to repeat the burden of the two or three 'echoes' a-week which have lately been sent, and of your own notes, but now that a few drops of rain are falling, the precursors, it is to be hoped, of copious showers, we may sound the note of hope. Notwithstanding the cold winds which have prevailed for two months, I am sure the bees have done their best. With plenty of tempting sunshine there have been some calm and mild days, and our little friends have carried in abundance of pollen, but certainly not much honey. It is very interesting to note (when one has leisure) the varied colours of the contents of their baskets. I have taken an opportunity of examining some half-dozen hives and find large patches of brood with many already vacated central cells. Some stocks were very strong and will soon require attention. Happily supplies are ample as yet, and I am glad that I left as much as I did of natural food. The blossom of bush fruit is very backward, and the few gooseberry buds which the bullfinches left me have had great difficulty in expanding. But now we shall be full of hope, and so may 'April showers bring forth May flowers.'—C. R. S.

Kendal, April 30.—On examination of my hives on April 9th I found all had wintered well and were abundantly stored, but unfortunately one of them had lost their queen, so I put a frame of brood out of another hive in and they made a queen, but as there were no drones I sent to Mr. Simmins for one. She arrived on April 25; so I took the remaining brood out, and at night I kept the queen without food for thirty minutes, then I turned up the quilt in the centre, gave them a puff of smoke, let her run in and soon heard the sound of welcome. On the 28th I took a frame out and saw the queen moving about and a quantity of eggs. —George F. Martindale.

Chippenham, Wilts.—A longer and more trying winter and spring for bees I never remember, neither do I remember a spring in which they worked less and were confined so much to their hives by ungenial weather. And yet they appear healthy and fairly strong. During the last week they have started in earnest and are evidently making great efforts to make up lost ground. I noticed to-day (April 30) the pollen-carriers from my strongest stocks were entering the hives heavily laden at the rate of thirty-five per minute, the weaker stocks not averaging more than fourteen per minute. I should like to know from other echoes if this is a fair rate of progress.—W. A. Warrilow.

Rempstone, near Loughborough, May 2.—All the colonies in this immediate neighbourhood are alive and able to kick, except a few bees which have either kicked the bucket or their interfering master. Many of the stocks are getting very short of food, and if not attended to promptly will starve or just be ripe for sections in August, after the honey flow. I saw the first drone on the wing on the 3rd of April. They are very busy just now (not the drones) on the gooseberry trees, and what pellets of pollen they bring home!—Arthur Felstead.

[We appreciate your appended suggestion.—Ed.]

Harborne, Birmingham.—Considering the cold east winds and frosty nights we have had for so long, my hives are wonderfully strong, but not nearly so as they were this time last year. Every year at the beginning of April I crowd the bees into as small a space as possible, the strongest stocks only having six frames left them; then about a fortnight later I put back the surplus combs, one every week, in the centre of the brood nest, and it is really wonderful to see the energy with which these stocks work, in comparison with those left with ten or twelve combs. Yesterday, May 1st, they were hard at work bringing in pollen of all colours in great quantity, besides water, and honey from gooseberry and currant blossom. All we want now is a warm moist month to repay us, in some measure, for what we have gone through.—H. J. Sands.

Belfast, April 28th.—The reports that have reached me from all parts of this district are very favourable. Bees have wintered well and only want fine weather. I am sorry to say since Sunday last it has been more like midwinter than end of April; we have had hail, snow, and frost, with occasional bright sunshine. However, a change has taken place to-day, which I hope will continue, viz., weather warm and calm. Furze, willow, and dandelion, affording great pasturage if bees can only get out.—P. M'H.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

John Ross.—*Fumigator.*—Many of those who have made trial of Webster's fumigator prefer it to the ordinary smoker.

A. Pinney.—*Old Combs.*—It would be very bad policy to put a swarm on mouldy combs and sour honey. Melt them down, and put the swarm on foundation. Very likely the sour honey killed your bees.

E. Richards.—*Fertile Worker.*—According to your description the brood is that of a fertile worker. You say, 'there is a fine lot of bees;' are you quite certain that a queen did not escape your notice? Carefully examine

again, and if the colony is queenless almost your only plan will be to give a fertile queen caged on a frame of brood.

N. Chapman.—Calvert's carbolic acid can be obtained from any chemist. Do not reduce the width of the frame shoulders; an inch and a half is the correct width. Your drones were early, but it is a good sign.

Primrose.—1. *Glass Shade.*—If the glass shade is of clear white glass and sufficiently strong it will make a good receptacle for comb-honey. No ventilation is required. Foundation starters, as guides for combs, are desirable. 2. *Packing.*—There is no difficulty in sending *swarms* long distances. At this time of year there is considerable risk in transmitting colonies on combs. For packing, we must refer you to our back numbers.

B. J. G.—*Moth in hives.*—Moth and grubs are frequently found among the débris in a hive, and if not removed, as you have done by shifting the bees and combs to another hive, might attack such combs as are not covered by the bees. They do not injure the bees nor affect the honey, but destroy the combs if allowed to increase. Examine the combs, and if you see a whitish trail running across the cells at the bases, against the midrib, remove it with a pen-knife, and kill the grub which you will find in it. The bees will soon repair the slight damage to the combs. Strong stocks with the combs covered by the bees are safe from the attacks of moth.

T. C. R.—*Dead Larvæ and Young Bees.*—The bees arrived so flattened as to be undistinguishable; but from your description it appears that some cold night the bees condensed themselves, and left the edges of the brood to be chilled, and these chilled bees are those which are being thrown out.

T. Lightfoot.—1. *Stimulating.*—Syrup made from crystal sugar in accordance with instructions given in Cowan's *Guide-book* for spring feeding will suit you better than that made from the sugar you have sent. Porto Rico is a raw sugar suitable for dry-sugar feeding. 2. *Method of Management.*—Do not give the bees too much room and several of the stocks will undoubtedly swarm naturally. As they do so, divide the combs containing queen-cells and the young bees in the old stocks from which the swarms issue into nuclei. You will thus get queens raised under the swarming impulse, which are always the strongest and best. If they do not swarm naturally about the middle of July take matters in hand yourself by making artificial swarms from as many as you wish. You will thus get sufficient young queens with proper management to requeen all your stocks if you think well of doing so. Note. Be careful to do this before the queens have stopped laying, which they frequently do when the great honey flow ceases. 3. *Comb-foundation.*—Tried by the ordinary rough-and-ready tests your wax foundation seems good. We should not scruple to use it.

J. B. S.—*Syrup in Rusty Tin.*—The small amount of iron taken up by the syrup will not be injurious to the bees; still it is better to keep food or honey in earthenware or glass kettles.

W. H. V.—*Queen Raised in April.*—If you or your neighbours have plenty of drones flying, she may be fertilised, but the weather is against it. You would have done better to have united your queenless stock at once instead of giving eggs. If she does not lay soon you had better unite.

Brixton Turnover.—As the river has many tributaries, some clear and some muddy and turbid, yet still rolls on its seaward course, so bee-keeping is occasionally diversified by sundry disturbances, which, however, soon flit past, and the good work proceeds on its onward march.

Trevor Raynor.—*Age of Queens.*—An old queen may be known by the worn appearance of her wings and by her movements not being so agile as those of a young one.

Mrs. Hay.—*Use of Hive, &c., having had Bees affected by Foul Brood.*—If you have many other stocks which are not at present affected, we should say that the value of one empty hive would not be worth the risk. If you decide upon using it, scald it well out with strong soap and carbolic acid and water. The combs should be melted down, and the syrup in them boiled before being given to other bees. The drawn-out sections would, if placed upon another hive, most certainly infect it, and these could not be disinfected without spoiling them, the wax had better be melted and the sections burned.

Primrose.—*Honey-comb Designs.*—By referring to page 224 of previous volume, you will find a letter from Mr. Wm. M'Nally giving detailed instructions as to the method of making honey-comb letters and designs.

G. G.—*Patent Rights.*—A hive being patented we conceive that you have neither a legal nor a moral right to make one without permission of the patentee.

Received from Mr. Harry F. Row, Braintree, Essex, his Illustrated Catalogue of Bar-frame Hives and Bee-keepers' Appliances. 24 pp.

Received from Mr. A. Cockburn, of Cairnie, by Keith, N.B., his Illustrated Catalogue of Bar-frame Hives and Apiarian Appliances for the practical and profitable management of Bees.

Received from Mr. C. Redshaw, South Wigston, near Leicester, his Illustrated and Descriptive Catalogue of Hives and Bee-keepers' Appliances. This Catalogue contains some specimens of the blue and gold labels supplied by Mr. Redshaw.

Received from Mr. A. Watkins, of Hereford, Schedule of Prizes for Show of Hives and Honey to be held at Ross, Herefordshire, in connexion with the Herefordshire Agricultural Society, on Tuesday, Wednesday, and Thursday, June 14, 15, 16.

Show Announcements.

June 23, 24.—Suffolk Agricultural Show at Bury St. Edmunds. Entries close June 16. J. Huckle, Secretary.

July 11–15.—Royal Agricultural Show at Newcastle-on-Tyne. Entries close May 12. J. Huckle, Kings Langley.

July 20-22.—Lincolnshire Agricultural Society at Spalding. Entries close July 4. R. R. Godfrey, *Secretary.*

July 26, 27.—Warwick Agricultural Society at Sutton Coldfield. J. N. Bower, Knowle, Secretary.

July 27.—Bishops Waltham Show. (Hants and Isle of Wight Association). H. W. West, Hon. Sec., Swanmore House, Bishops Waltham.

August 3–5.—Yorkshire Agricultural Society at York. Secretary, H. L. Rickards, Poole, near Leeds.

Business Directory.

For the use of Manufacturers and Purchasers of Bee-keeping Appliances.

HIVES AND OTHER APPLIANCES.

Abbott Bros., Southall, London, and Merchants' Quay, Dublin.
Appleton, H. M., 256A Hotwell Road, Bristol.
Baker, W. B., Muskham, Newark.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
British Bee-keepers' Stores, 23 Cornhill, E.C.
Burtt, E. J., Stroud Road, Gloucester.
Edey & Son, St. Neots.
Howard, J. H., Holme, Peterborough.
Hutchings, A. F., St. Mary Cray, Kent.
Meadham, M., Huntington, Hereford.
Meadows, W. P., Syston, Leicester.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
Stothard, G., Welwyn, Herts.
Webster, W. B., Wokingham.
Wren & Son, 139 High Street, Lowestoft.

HONEY MERCHANTS.

Abbott Bros., Southall, London, and Merchants' Quay, Dublin.
Baker, W. B., Muskham, Newark.
Baldwin, S. J., Bromley, Kent.
British Bee-keepers' Stores, 23 Cornhill, E.C.
British Honey Co., Limited, 17 King William St., Strand.
Howard, J. H., Holme, Peterborough.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.

FOREIGN BEES AND QUEENS.

ABBOTT BROS., Southall, London, and Merchants' Quay, Dublin.
BAKER, W. B., Muskham, Newark.
BALDWIN, S. J., Bromley, Kent.
BLOW, T. B., Welwyn, Herts.
BENTON, F., Munich, Germany.
HOWARD, J. H., Holme, Peterborough.
NEIGHBOUR & SONS, 149 Regent St. & 127 High Holborn.
SIMMINS, S., Rottingdean, near Brighton.

METAL ENDS.

ABBOTT BROS., Southall, London, and Merchants' Quay, Dublin.
BAKER, W. B., Muskham, Newark.
BALDWIN, S. J., Bromley, Kent.
BLOW, T. B., Welwyn, Herts.
BRITISH BEE-KEEPERS' STORES, 23 Cornhill, E.C.
LYON, F., 94 Harleyford Road, London, S.E.
MEADOWS, W. P., Syston, Leicester.
NEIGHBOUR & SONS, 149 Regent St. & 127 High Holborn.

COMB FOUNDATION.

ABBOTT BROS., Southall, London, and Merchants' Quay, Dublin.
BALDWIN, S. J., Bromley, Kent.
BLOW, T. B., Welwyn, Herts.
BRITISH BEE-KEEPERS' STORES, 23 Cornhill, E.C.
HOWARD, J. H., Holme, Peterborough.
NEIGHBOUR & SONS, 149 Regent St. & 127 High Holborn.
STOTHARD, G., Welwyn, Herts.

HONEY GLASS MERCHANT.

PEARSON, F., Stockton Heath, Warrington.

FRY'S HONEY and FRUIT SYRUPS, CHAMPAGNES, CORDIALS, and BEVERAGES (Awarded Five Prize Medals) for Shows, Fêtes, and Private use. Price Lists free. Agents Wanted. Manufactory: Bishop's Waltham. A 2561

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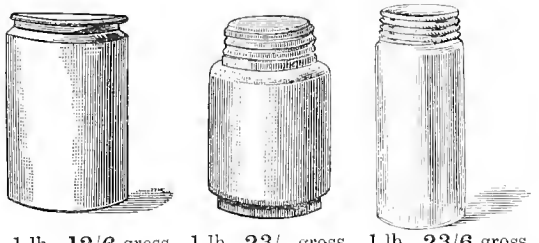

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Can be adjusted to any ordinary smoker bellows.
6 oz. Bottles of Agent—carbolic acid, oil of tar, and water, proportionably mixed—6d. each.

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With this appliance, frames can be removed from hive. Examined on both sides and replaced without inverting, and with one hand only, leaving the other free to perform any manipulation, at the same time preventing the soiling of hands with propolis. **1s. 6d.** each. Postage 3d.
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Note bottom of feeding flask brought within reach of Bees, also how quarter inch cavity crossing the combs gives safe and easy access to all the cluster.

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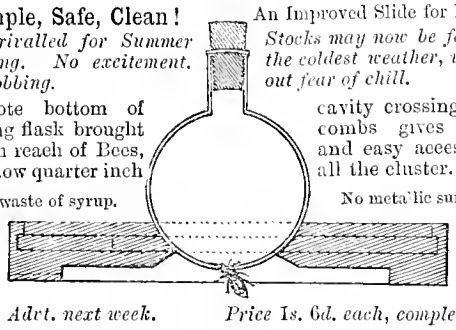

See Advt. next week. *Price 1s. 6d. each, complete.*

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BEES, £5 5s. HONEY, £5 12s. 6d. HIVES, &c., £14 10s. 6d.

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THE
BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, St. Martin's Lane, W.C.'

[No. 255. VOL. XV.] MAY 12, 1887. [PUBLISHED WEEKLY.]

Editorial, Notices, &c.

'A MORE EXCELLENT WAY.'

While there have been various differences as to the appropriateness of the word 'Apifuge' as applied by Mr. Grimshaw to the composition he has brought before the public for quieting bees, yet there cannot be any divergency of opinion as to the desirability of having some such agent which will mollify the temper of bees, and which will engender a greater degree of confidence in the mind of the bee-keeper. If Mr. Grimshaw has been fortunate in making the discovery of such an agent, or even an approach to such a result, another hill-top has been gained, and great is the amount of gratitude which is due to him from all bee-keepers.

It is, indeed, a subject for wonder that so many generations should have come and gone, and so many ages rolled past, and yet the temper of bees seems as irascible as when David expressively said of his enemies that 'they compassed him like bees,' or when the Romans described them as animals *ferœ naturæ*. With all our boasted advancement in science and civilisation, we have made little or no progress in the humane treatment of honey-bees. The means that we have taken to subjugate them have not met with success. All the coercion acts that we have promulgated,—all the coercion bills that we have issued, have not had the effect of bringing them to be the willing servants of man. They are still ready to fight, to the death, in defence of their 'hearths and homes.' From the time of Columella, and no doubt long anterior to him, we have been engaged in one continuous warfare against them. What numerous agents have we not employed to subjugate and bring them subservient to our dominion; and yet, with a bravery and a resolution that we must respect, they are still implacable and defiant. We have brought against them all the means which the ingenuity of man could devise. Volcanoes of smoke have been belched into their domiciles; 'tumultuous clouds, instinct with fire and nitre,' have been rolled into their midst; buckets of carbolic acid have been 'disgorged' in 'baleful streams' amongst them; they have been 'stupefied with the narcotic fumes of puff-ball;' they have been rendered insensate by chloroform or ether; they have been smothered and suffocated, as Dr. Butler has it, with 'dank straw or hay, with brimstone, bunk, puk-fists, touchwood, and mushrooms.' Smokers of all kinds, cold-blast and hot-blast, have been invented with a view to subdue them. Saltpetre, tobacco, wintergreen, oil of tar, brown paper, corduroy, fungus, and all other noxious and filthy substances, have been arrayed against the poor speechless sufferers. We have proclaimed that the object of our establishment of Bee-keepers' Associations has been 'the advocacy of humanity to that industrious labourer—the Honey-bee.' We have arrogated to ourselves a superiority in humanity to our predecessors, who with one act put an end to what they considered their surplus stocks. We have 'sat in the seats' of the Preventers of Cruelty to Animals. We have called the bees by most endearing names,—'our 'pets,' our 'favourites,' our 'dear little friends.' And yet what tortures have we inflicted upon the quivering creatures to make them feel that we are their masters! We have dosed and physicked, we have suffocated and asphyxiated, we have nicotinised and carbolicised them, that they,—cowed, subjugated, and demoralised,—should pass under our 'Caudine Forks!' And, let us ask against whom have we employed all this machinery? Against 'the little busy bees,'

> 'That with their pretty buzzing melody
> Came here to make us merry;'—

insects so 'fearfully and wonderfully made,' showing in so great a degree intelligence and instinct in their habits and in the architecture of their combs and cells that the very heathen attributed to them a *divina mens** (a divine mind). And can we, who have attained with our greater knowledge a further insight into their wondrous structure,—their arteries, their nerves, their tissues, their spiracles, their eyes, and their whole physiology, resist saying, 'The Hand that made them is Divine!' And yet in how sad a method have we treated this reflex of Divinity! We sorrowfully confess that these deeds have been done in our 'times of ignorance,'—'our salad days when we were green in judgment.' Let the time past suffice us to have wrought in this misguided fashion, and let us acknowledge that a new light has beamed upon us. The darkness of the long night is yielding to the dawn of a brighter and happier day.

Mr. Grimshaw has appeared as a pacificator; he desires to establish an *entente cordiale* between

* Virgil, Georgic iv. 220.

us and our bees; he points out 'a more excellent way' of treatment. He has inaugurated a new era. He is the prophet of a new evangel.

We have been experimenting with the 'Apifuge' on a stock which was vicious in the extreme. The effect on the bees was sedative, taking from them the disposition to attack and sting. It had no repellent power, the bees fearlessly approached it, and seemed desirous to examine this new agent. Having satisfied themselves of its innocuousness, and even its pleasantness, they resumed their work as if saying, 'THE GOOD TIME HAS COME.' The substance is not displeasing; and washing the hands in warm water will readily take away any odour.

Ladies and beginners in bee-keeping will hail the 'Apifuge' as a good friend, removing their fears and creating a pleasant confidence. It will be the means of vastly increasing the number of bee-keepers.

We have received several testimonials from those who have given the Apifuge a trial. We have already on p. 163 given the testimony of a correspondent who says 'that during the whole of the manipulation there was not the least attempt at stinging,—in fact, all the sting seems taken out of the bees by the agreeable odour it possesses.' 'C. A. J.' says she would wish to add her testimony to that of the previous writer: 'I have tried it on two occasions, and the result was exactly the same as that described by that correspondent.' 'A Lady Amateur' writes:—

'I should like to add my testimonial to Mr. Grimshaw's Apifuge. It seems to me simply perfect. I have manipulated my bees without veil or gloves, and have not received a single sting. I was attacked by one angry bee in the face, but it was sufficient to raise my hands to my face to protect me. One great advantage is that it gives me entire confidence. I had lost mine to a great degree, having once been attacked by a whole hive when driving bees.'

We have received other testimonials, but our space will not permit their insertion; at the same time we shall not be surprised to hear of some failures.

We think that there can be little doubt, on the whole, as to the virtue and the value of the discovery made by Mr. Grimshaw. 'He that hath deserved should bear the palm.' Let Mr. Grimshaw bear the palm, and have all the honour and reward that he deserves.

THE YEAR OF JUBILEE.

The air is resonant with sounds of loyalty. From every city, village, and hamlet, there are stirrings of mind and heart to mark this year with some remembrance as a year of Jubilee. Church and State, all grades and conditions of men, are earnestly desirous to raise some monument which will cause them to remember this the fiftieth year of Her Majesty's reign.

We conceive there is no class or body of men among Her Majesty's subjects who are more solicitous of evincing their loyalty to their Queen than bee-keepers. With the community at large they have that respectful feeling towards a sovereign whose reign has been one of peace and of progress in all the arts and sciences; and in their hearts, as in those of others, a sense of gratitude is alive to Him who has spared her as their ruler for so many years, and under whose mild and gentle sway Britain has made such wonderful progress among the nations of the earth; and the hope is in every heart that her life may be long spared to reign over a loyal and contented people.

We bee-keepers may be but a 'feeble folk,' yet we consider there are special reasons why we should not be behindhand other communities in raising our voices in welcoming this auspicious year.

From Her Majesty, and from many members of the Royal family, we have received many tokens of the interest they have taken in our special industry. We have several members of the Royal family acting as Presidents of the County Associations. We feel that we were deeply indebted to the Prince of Wales for his kind and gracious permission in holding our long-to-be-remembered show at South Kensington; and the presence of Royalty has been frequent at the bee-departments of numerous agricultural shows.

From the study of the economy of the honey-bee there is much to incite bee-keepers in their devotion to their Queen. In the constitution of our realm, and in the order of government by bees, there is much that is congruous and parallel. The bees have, says Shakespeare, 'a king,' (*i.e.* a queen) 'and officers of sorts,'—they have a ruler in whose welfare they take an intense interest:—

'They link with industry the loyal mind.'

The prosperity of the hive rises or falls with the health and condition of the queen. Again, Dr. Butler, in his *Feminine Monarchie*, says:—'The bees abhor polyarchy, as anarchy, God having showed in them unto men an express pattern of a perfect monarchy, the most natural and absolute form of government.' Together with bees we have had a 'feminine monarchy,' and we all have good reason to rejoice that that monarchy has continued with so much benefit for the long period of fifty years.

Should we not then, in some direct manner, take our part in the general rejoicings which are sounding from every quarter of the Queen's dominions? We conceive that there will be no dissentients in this, and that all are anxious to commemorate the year of jubilee. The question is, How can this be best effected? We should suggest that the Committee of the British Bee-keepers' Association should forthwith meet and give this matter their best and most earnest consideration. Having resolved on some mode of honouring the event, it might be requisite to call a general meeting of the members of the Association and to ask their assistance in carrying out their views.

Bearing in remembrance the happy meetings that bee-keepers held last year at South Kensington, and feeling assured that bee-keeping derived a great and continuous impetus from that show, and that it is always desirable to keep bee-keeping before the eyes of the public, we would suggest that this year should not pass away without holding a similar

exhibition to the South Kensington, improved upon by all the experience of the past.

The question would then arise, Which place would be most suitable for the show? We would suggest that, if possible, it should be held in connexion with the American Exhibition, which will doubtless this year be the great outstanding attraction in the metropolis. We know the difficulties which stand in the way of accomplishing our suggestion. We are aware of the great difference between the two undertakings, the South Kensington and the American—the one in a great degree was public and philanthropic, the other is a purely commercial and private speculation. But as all obstacles were overcome in obtaining permission to hold the show at South Kensington, and we found ourselves amidst Indian and Colonial objects, so the unexpected may again occur, and there may be a possibility of seeing bee-keepers among Americans during the coming season.

We leave the suggestion in the hands of the Committee, convinced that whatever is practical will be done by them, not alone for the progress of bee-keeping, but to show the loyalty of bee-keepers to their Queen and Sovereign.

NOTICES.

Our readers' attention is called to the fact that the date for closing Entries of the Bury St. Edmunds Show has been changed from June 16th to June 6th. The date has been altered to suit the arrangements of the Suffolk Agricultural Society, in order that the exhibits of honey, &c., might be published in the general catalogue of the Exhibition of Stock, &c.

Entries for the Royal Agricultural Show close to-day. Post entries at double fees will be received up to June 1st.

USEFUL HINTS.

Weather.—With the exception of an occasional day of sunshine, the weather still continues cold and ungenial, with frosty nights, easterly winds, and cold showers.

Forage.—Fruit trees are full of bloom which has little chance of unfolding itself, and there is little bee-pasturage at present available. Our apiary is surrounded with numerous poplars, of four different species, which are full of bloom, shedding their catkins all around, on which the bees feast with evident satisfaction, appearing to prefer working upon the fallen ones to those still hanging upon the trees. Beneath the trees the ground is covered with bees busily at work with merry hum, while scarcely a bee is to be seen upon the trees.

Probably the pollen is more easily collected from the withering bloom, and exposure to the cutting winds is avoided. Furze, dandelions, blackthorn, and a few other wild flowers, are all our forage at present. When Eurus ceases to blow we shall hope for better times. No honey has yet been carried into our hives, but stores are still plentiful within, and the population increases so rapidly that our forwardest colonies are ready for surplus cases.

Feeding out-of-doors we do not recommend. The disadvantages, in our opinion, far outweigh the advantages. Our objections are: 1. It encourages a desire for pilfering. 2. The fighting over the exposed food is considerable, consisting of a series of single combats. 3. Bees, when laden with food, often become chilled and unable to reach their hives. 4. All bees, say within a radius of a mile, discover the exposed food, and if foul-brood exists in the neighbourhood, are tolerably certain to communicate it. These, we think, are weighty reasons against the practice of out-door feeding, when compared with the peacefulness and quiet of top-feeding for each colony separately from a good heat-conserving feeder. If comb-honey be the food there are plenty of top-feeders in which it may be given, such for instance as Neighbour's, or it may be laid over the feed-hole and covered. All syrup should be phenolised or salicylised, since foul brood at this season is especially to be dreaded, and therefore to be guarded against.

Enlarging Brood-nest.—The brood-nest, in prolific colonies, should be continually enlarged by the removal of outside combs which are honey-clogged, passing them through the extractor, and returning them to the hives, when they will quickly be utilised for brood-rearing, and will supply a stimulus to the bees, but too much room must not be given, indeed, very little more than can be filled. 'Crowding' the bees is a most important principle, which must not be neglected until the hives are quite full of bees and forage is plentiful in the fields, when supers should be given without delay.

Giving Supers.—The enlargement of the upper parts of the combs with new wax is a sure sign that more room is required, and super arrangements should be made, uncapping a few cells in the upper parts of the combs before placing sections in position.

Comb Honey, during the early part of the season, in our opinion will pay better than extracted, since it is the finest in quality, keeps a long time free from granulation, and is liable to no admixture of aphidian excretion, which spoils so many late supers. Our fruit and hawthorn honey we often keep a whole year—and have kept it two years—without the slightest granulation. We do not work, therefore, for extracted honey in the early season, but delay our doubling operations until the first supers have been removed, preventing swarming, by giving room above and below the brood-nest, with ample ventilation in hot weather. If the bees, notwithstanding all these precautions, will persist in swarming—which very rarely happens,—we adopt one or other of the plans described below which gratifies the natural desire for swarming, and keeps up the working energy at fever heat.

The forwardest and strongest colonies having received supers for storing from fruit and other early bloom, the second-best should be stimulated, and assisted by all possible means; weak colonies which are unlikely to afford surplus should be united to the stronger ones, thus forming populous stocks by the time of the arrival of the white clover honey. Or if preferred two moderate-sized colonies may be united, and supers given a couple of days afterwards.

Suppose, now, that all surplus arrangements, intended at present, are complete and that our bees are at work in the sections. These must be carefully watched, and as soon as the cases are about two-thirds filled they should be raised and a case of empty sections placed beneath each, thus affording space between the partly filled cases and the brood-combs, an arrangement which will generally satisfy the bees at the critical moment when the swarming fever is most likely to seize them, and will afford them ample opportunity for expending their energy in the storage of honey, instead of frittering away the precious moments in the vagaries of swarming.

Any sections in the upper cases which are finished and well sealed should be removed, and their places taken by those nearly completed, the gaps being filled by empty ones, always keeping the cases containing most honey at the top. To an exceptionally strong colony space may also be given below the brood-chamber by inserting a shallow chamber containing frames of from four to six inches deep with full sheets of foundation.

This system will generally prevent swarming, but occasionally—so strong is the impulse of nature—that in spite of every precaution a swarm will issue.

Natural Swarming.—Then let us suppose that one of our strong colonies, having accepted and commenced work in its supers, casts a swarm. What course shall we take? When the swarm has settled, sprinkle it slightly with water from a garden syringe to prevent its rising again, and to cause it to cluster more closely while you are engaged in arranging the hives. Returning to the parent-hive, remove the surplus cases, and from the brood-chamber take all the frames (except two, well filled with brood, but without queen-cells) and, placing them in an empty hive, close up with division-boards and remove the hive to a new position. Add to the two frames of brood, left in the parent hive, on each side, sufficient frames, containing full sheets of foundation, to fill the hive; place zinc-excluder upon the frames and return the surplus cases just removed, wedging up the brood-chamber a couple of inches in front. Now hive your swarm in a zinc pail, throwing over it a thin cloth or small sheet, and, carrying it to the parent hive, cast it down in front of it, watching until you see the queen enter, and hastening the ingress by guiding it with a carbolised feather. A few minutes will suffice for the operation, and the swarming impulse being satisfied, the work will be continued in the section cases with even greater diligence than before. The part removed to a new position may either be allowed to raise its queen and to form a separate colony, or it may be broken up and its brood divided amongst other colonies. If the former plan is adopted a good colony will usually result, and there is no fear of its casting a second swarm, as all the bees, save the nurses, will have returned to the parent hive. When we desire no increase, we leave as many as four frames of brood in the hives, to which the swarm is returned, placing them alternately with full sheets of foundation, being particularly careful to remove all queen-cells, and strengthen other colonies with the remaining sheets of brood. There is another plan which succeeds equally well. As soon as the swarm is well out, and has compactly clustered, keep it quiet as before by using a garden syringe. Remove all surplus cases from the parent hive, and, taking out every frame from the brood-chamber, destroy all queen-cells save one well formed and perfect. Replace in the parent hive the frame having the queen-cell and three others in the same position towards each other as they occupied before with adhering bees, brood, and honey. Fill up the brood-chamber with frames containing sheets of foundation, or preferably with comb already built, and let the hive occupy the same position as before. Take a new hive and place therein the remaining six or eight frames, whichever it may be, filling up with frames of foundation, and place it in a new position, with the surplus cases upon it, and a sheet of excluder zinc between. Now hive the awaiting swarm in a zinc pail as before, carry it to the new hive in the new position, and cast it out in front of it, carefully guiding in and hastening its entrance. In this case, as in the former, the swarming impulse will have been gratified, and work will be carried on with redoubled energy. Either plan may be varied by giving more or less brood to the swarm in accordance with the intentions of the owner as regards increase of colonies or otherwise. Whichever plan is used, the queen will soon be at work, and the bees will be storing honey in the sections more rapidly than before swarming for the simple reason that they have no other place in which to deposit it, but the best of all is that the swarming propensity will have been indulged, and to those who have never tried the system the manner in which the bees work will be a new experience. Provided the queens are not more than two years old, and are prolific, there will be no further attempt to swarm or to supersede them.

Preparations.—Let there be no delay in any preparations still required. Hives and section cases, all ready primed with foundation, should now be in store, ready at a moment's notice, for, notwithstanding the lateness of the season, natural swarms may be cast earlier than expected. When queen-cells are in progress, bees, like time and tide, wait for no man, and makeshifts are not desirable. Early swarms will often store more section-honey than old stocks, and with a market glutted with American and other extracted honey, good sections will hold their own, and will always bring a fair return sooner or later.

ASSOCIATIONS.

NOTTS. BEE-KEEPERS' ASSOCIATION.

The annual meeting of this Association was held at the People's Hall, Heathcote Street, Nottingham, on Saturday, May 1. Mr. P. Pilgrim, of Shelford, presided, and amongst those present were:—Messrs. Brearley, A. Felstead, A. Simpson (Mansfield Woodhouse), E. C. Walton (North Muskham), J. Colgrave, Allsebrook, Turner, and Marriott. Mr. F. H. K. Fisher, hon. secretary *pro tem.*, said that he had been asked to officiate for Mr. E. Ferneyhough, who through pressure of business had been unable to attend to the work incident to his acceptation of the post of honorary secretary and treasurer. He (Mr. Ferneyhough) was not able to be present at the meeting, and had not as yet prepared the statement of accounts. There was still a balance on the wrong side, but it was considerably less than that of last year. Up to some short time ago he was in hopes that there would be a balance in hand, because so little had been done by the Association last year. They had a great many members—109—last year, and the only business was that done at the Mansfield Agricultural Show, where they had a bee-tent, and a few prizes in connexion with other shows. Messrs. Morris and Place last year offered the Association the use of their mart for the purpose of holding a honey fair, but this matter had fallen through. The prizes won at the Mansfield Agricultural Show were in the hands of Mr. Barron. The holding of a honey fair ought to be one of the points to be taken up strongly by the committee this year if they went on with it. Members stated that the chief difficulty they had in connexion with bee-keeping was getting rid of their honey. If a fair was held this would be done away with. In conclusion, Mr. Fisher stated that Mr. Ferneyhough (Radcliffe-on-Trent) had promised to get his accounts properly made out in a few days. Mr. F. H. K. Fisher (Farnsfield) was appointed secretary, Lord Newark president, and Lord Charles Bentinck, Mrs. Robertson (Widmerpool Hall), and Mrs. Hole (Caunton Manor), vice-presidents. Mr. E. C. Walton, of North Muskham, was re-appointed manipulator and lecturer at shows held in connexion with the society. The following were appointed on the committee for the ensuing year:—Revs. T. B. Garland, and H. P. Ling; Messrs. A. Felstead, T. Rose, W. Silver, Mrs. Wotton, Marriott (Nottingham), Brearley (Carlton), Godfrey (Langley), Gosling (Arnold), R. Turner, and E. Ferneyhough (Radcliffe). A vote of thanks was accorded Mr. E. Ferneyhough for his services as honorary secretary and treasurer, and a similar compliment to the chairman closed the meeting.

YORKSHIRE BEE-KEEPERS' ASSOCIATION.

A Committee meeting was held on 30th ult. at Leeds. W. Clark, Esq., in the chair.

After transacting the usual business it was decided to print Mr. Grimshaw's suggestions on the formation of district associations, and to send the circular to each member of the Y. B. K. A. asking them to get the same inserted in the best local paper of their own district.

The committee were also informed that the Hon. Secs. were waiting a reply from the Saltaire Exhibition Committee to their offer to give lectures and manipulations at regular periods during the forthcoming exhibition. Since the last meeting a new district association had been formed at Horsforth (Hon. Sec. Mr. Burniston), and another at Skipton (Hon. Sec. Mr. Dodgson), and there is every probability that others are in course of formation.

Specimens of Cyprian, Syrian, Ligurian, and other bees preserved in spirit by Messrs. Abbott Bros., Southall, were exhibited by Mr. W. Dixon.

The customary vote of thanks terminated a highly successful meeting.

LOWESTOFT BEE-KEEPERS' ASSOCIATION.

The annual meeting of the members of the above Association was held on Thursday afternoon, May 5th, at the Public Hall, the Rev. C. T. Scott in the chair. A very satisfactory report was read by the Honorary Secretary, Mr. L. Wren. The balance-sheet showed that the receipts for the year, including balance from last year, were 20*l.* 0*s.* 8*d.*, and that there was a balance in hand of 4*l.* 9*s.* 5*d.* The re-election of the old committee took place with the addition of Messrs. K. Rix and S. Cox, and the committee's report was unanimously adopted. Mr. Wren was also re-elected expert, secretary, and hon. treasurer. Mr. Wren read an excellent paper on the 'Management of Bees for Profit.' The Chairman proposed a hearty vote of thanks to the expert, which being seconded by Mr. Thornhill, was carried *nem. con.*

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

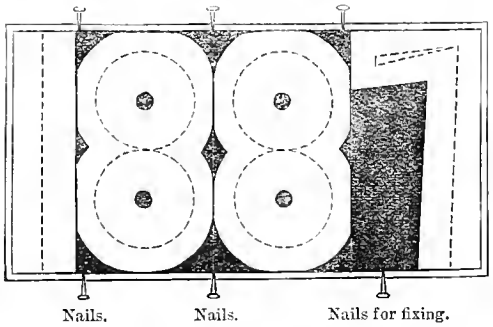
Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Upper St. Martin's Lane, London, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. Huckle, *King's Langley, Herts (see 2nd page of Advertisements).*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

HONEY-COMB DESIGNS AND LETTERS.—BEE-HOUSES.

[948.] From the great number of letters I have received this spring asking how to prepare supers of letters to put on the hives, and this being the Jubilee of our Sovereign the Queen, there seems to be a growing

Dotted lines show the foundation view under side.



appreciation as to how to build them. With your permission I here subjoin a drawing of the figures 1887 with further note how to build these. It will be to the advantage of your readers to look over my article on this subject in *B. B. J.* of May 20th last year, page 224.

To begin I here show a super 16 × 8 × 3 inches deep. Two of these supers cover ten frames as one super, the black marks show where the blocks are put in, to prevent the bees from misshaping the figures; the dotted lines show the foundation fixed in centre of each figure, one inch of a guide is sufficient. The blocks are fixed from the outside with nails or brads, and when the super is filled and sealed it is then taken off. The blocks being removed leave the 1887 completed. As I mentioned before these letters and figures do not as a rule pay. However, last year I had built on one hive, before the end of July, the words, 'Scotia,' 'Caledonia for Ever,' 'Dumfries Show, 1886.' With the former one I gained first prize at Dumfries Show and at all places wherever shown. With the others I secured premier medal for display of honey, these being prominent in the exhibit, which paid me. When the word is too long it has to be built in more supers, thus 'Scotia' is in two supers, and 'Caledonia' in three.

I hope I have made all plain, and will be pleased to answer any question on the subject through the columns of *B. B. J.*

Bee-houses.—I have just made one, and have placed it out two miles from my home apiary to hold twenty-two hives. Size of house, 9 feet 6 inches × 6 feet 6 inches × 7 feet high. There is no floor in it, and the hives sit on stands on ground, four on each side and three in the end. The door is in the other end, the top row of hives, 3 feet 6 inches from ground, are similar to bottom. I leave here abundance of room to manipulate and storify if required with room to store spare hives and appliances and all secured with lock and key. I have not the least doubt but bee-houses can be made to pay in the hands of an expert, as I have wrought them for several years on a smaller scale. The cost of fitting up a house something like my own should be about 3*l.* 10*s.*, or say 3*s.* 6*d.* per hive; any cheap hive will do for the inside. Scantling of timber for same is framing of 3 × 2 white pine; boards of dressed yellow $\frac{5}{8}$ sarking, joints covered with strips 1½ × 1½; roof of $\frac{5}{8}$ sarking and covered with Willesden paper, two-ply, the whole painted three coats white lead paint. One has here a substantial building to keep hives. I know the advocates of bee-houses are in the minority of bee-keepers, but I have found these houses so far profitable.—William McNally, *Glenluce.*

POISONOUS PLANTS.

[949.] I may be allowed to add a fact on your interesting reference to the poisonous nature of certain plants, &c. (see p. 198). Some few years since I had unusual facilities for observing bees working on rhododendrons, azaleas, and kalmias, that I can confirm the inference you have drawn, 'That the common bee is *scarcely or* never seen to settle on these plants.' In these species, with their numerous varieties, nectar is secreted in abundance, and proves for humble-bees a veritable land flowing with honey. One of its components must be something akin to alcohol (in bee-life) as the nectar has a similar effect on the humble-bee as this spirit on the human species. These bees visit and collect the nectar with extreme avidity, and it has such an immediate effect that, as a rule, they are apparently thoroughly intoxicated by the time their honey sacs are full. In walking through grounds extensively planted with the above, and when in bloom, I have frequently seen upwards of a dozen in this state, tumbling and rolling over in a most comical fashion, vainly attempting to take flight; although I cannot say for how long this fit of inebriety continues.—James Lee.

BRITISH BEES. (930).

[950.] As a bee-keeper of thirty years I cannot allow even Mr. S. Simmins to libel our British bees by describing them as black without protest. There is in some parts of the country a race of small degenerate bees of a very dark colour, but there is also in every county to be found a fine handsome race of native bees, similar in colour to the Carniolan, and without a particle of foreign blood in them. If Mr. S. has never seen them I can tell him of a gentleman, well known as a first-rate bee-keeper in the county of Lincoln, who has carefully avoided all foreign strains, under the belief that some day the pure British bee would become a valuable article in the bee-market. The small dark-coloured bee referred to I attribute to the fact that in some parts bees have been known to occupy a hollow tree or a church roof for a great many years, and with constant breeding in the same combs, the cells of which become both small and black, the race degenerates; but to describe such a bee as the true type of the British, would be about as truthful as to describe the race of men who work in our coal-mines as a type of British manhood.

If I did not know Mr. S. personally, I *should* think he was joking on this subject.—THOMAS F. WARD, *Church House, Highgate, Middlesex, May 2.*

LEE'S SECTIONS—APPLIANCES—FOUL BROOD.

[951.] Having had Mr. Lee's new sections submitted to me some time ago, I have been intending to write a few words with regard to them, but have not found time to do so. I fear now that anything I might have said has been forestalled in the *Journal*. The principle seems to me decidedly an advance forward, which is more than can be said of many new inventions nowadays; and, as Mr. Lee suggests, I believe that the bees will not be inclined to make 'popholes' in sections of this kind. With regard to the price, I cannot think that they can be made to compete with the cheap rate of the ordinary ones; but, personally, I fancy a small extra cost will in the end repay the purchaser.

I should advise the use of these sections, giving the bees a passage above and below, and not at the sides. From your article I gather that you would so use them, but Mr. Lee himself thinks the space is better given vertically (*i. e.* the long strips form the top and bottom of the sections). One drawback to this would be the loss of surface on the top of the frames, as much of it would be covered by a vacuum. I find bees fully appreciate a direct passage of this kind, and fill the sections more fully and with greater speed than those in ordinary use. I should like to write at greater length on this subject, but I must not trespass at present on your space.

May I add a few words on another topic? Many letters have appeared of late in your columns (written chiefly by novices) finding fault with goods supplied to them. Being in no way connected with the trade, but having had occasion for many years to use the hives and other appliances of most of our leading dealers, I wish to bear testimony to the uniform excellence of the things they have sent me.

One word, in conclusion, to those who have had no experience with foul brood. Be very careful in equalising stocks, that diseased combs are not put into hives which are in a healthy condition. The disease, which is most prevalent at this time of the year, is spread in this way much more than is generally recognised.—A. G. RADCLIFFE, *East Grinstead, May 6.*

THE COMING BEE.

[952.] The following from the pages of Dr. Jessop's new book *Arcady*, one that should be read by every parson and landholder in England, is too good not to be read in the *B.B.J.*:—

'"I'm an *apiary*, sir," said a shiny being who called upon me the other day. "A what?" "An *apiarist* is, I believe, the more correct term, sir; and I am collecting orders for my new hives." How that man did talk! He had got hold of some scheme, and I am seriously informed it is actually a feasible one, for increasing the normal size of the common domestic bee (*Apis ignoratissima*) by somehow knocking two cells into one, and producing a sort of double-barrelled bee, "and adding enormously to your stock of honey, sir." It appears that we can absolutely increase the size of our bees indefinitely, and that the men of the future will have hives as roomy as an omnibus. Appalling prospect! Think of a bee as big as a rat bouncing into your greenhouse, bellowing hoarsely while he ravishes the orchids, or flopping into the nursery sugar-basin, glaring with his huge eyes at the terrified baby. Edith Evangeline—for Sara Anns have gone to a better world—would drop down inane, a lump of hysterical despair. We shall have to suppress these things by Act of Parliament at last. Meanwhile my shiny friend does not lack for orders, and if he has his will he will speedily improve off the face of the earth the little busy bee whom we used to sing of, and because we sang of, to love.'

Joking apart, *Arcady* is a book to be closely read, pencilled, marked, and carefully digested by every one who realised the width of the Doctor's remarks in his capital article in the *Nineteenth Century* of March last.—RECTOR, *Buckland Filleigh.*

IN THE HUT.

[953.] Two huttites at the end of March got summary (yes, the weather also gave summery) notice to remove their hives from a garden in which they were placed. Lucky for them it wasn't later. Willy-nilly, out they must go; for the ancient gardener really couldn't stand 'em (the bees). The difficulty was they had only about three hundred yards to go, and bees were all flying, and carrying in pollen from the willows; so the rule—not the two-foot rule, but — the two-mile theory, was to be tested.

By the aid of a hand-barrow and plenty of tobacco much may be accomplished, and this was done so successfully that on examining the spot afterwards instead of it proving a veritable necropolis, there were not found so many as a dozen bees out of near a dozen hives. There are now two more sceptics in the world as to the dogmas of our bee books.—(Is not skeptic a better word than skeppist in these philological days?) The explanation that the dead bees might be 'what Moses was when Abram built de ark—thar or thar'bouts' availed not.

In 'Echoes,' p. 154, a correspondent finds 'new-laid eggs' in his hive. We know what he means, but to the ex-bee-mundane mind it must read very funny. 'A. E.' recently found fault with me for mentioning broad-shouldered frames, and now another huttite invites him to tell us of a better if he can and it shall have a fair trial, as it was only after mature deliberation that we determined to replace all frames by these.

A hint to those who intend to transfer his bees and combs to other frames for uniformity's sake:—If the transfer be to smaller-sized frames, fasten, with a tack, a bit of wood under each projecting shoulder of the empty frame so as to lengthen it (it will thus not drop down into the hive); comb or foundation being duly fixed, insert one or two judiciously, near centre of brood-nest taking out the two outside empty combs, shaking or brushing off any adhering bees, the rest having been driven towards brood-nest by a little smoke. Now at leisure these combs may be cut to fit tightly into the smaller frames, securing them with a couple of tapes; and, in a few days, this process may be repeated till all are done, always having care to work the old frames to the outside so that they

may be pretty clear of brood and bees. Finally, the whole transfer may be made into the clean hive in a few minutes some fine day, without having a row, or danger of chilling brood or robbing.

I hope our readers will not forget, in fixing foundation in sections, that the top quarter of the section may be split by a penknife, the foundation inserted in the slit and the fixing up completed without the aid of Parker fixer. No wax running, running the risk of unfixing the foundations of the dental mechanism of the unfortunate whilst eating section honey.

The Woiblet Spur Embedder! Is this an equestrian term? I saw that spur on the table at Jermyn Street on 20th ult., and it was indeed a 'Wobbler' at one end with a tin Carlin cutter at the other, so that when using the cutter the spikes of the 'business end' would wobble into the palm of the hand in a highly successful manner. Seriously, it is a most useful little implement.

Mr. Bellairs starts a new theory:—'The bee which hesitates is lost, and cannot sting.' Huttites well appreciate and are grateful for statistics of honey imports, but they cannot take this on. Their bees often meander leisurely about, searching for a nice place, and finding one they deliberately lay hold of the skin, as it were, with boot-hooks, and proceed to insert their *weepon* with all the calm determination and vigour Mr. B. would exhibit in putting on a Wellington boot. In short, they sting *à la belle air*, but not *à la* Bellairs. 'O Sophonisba! Sophonisba O!'

Our dear 'Useful Hints' in his remarks on experts last week makes us smile all over. Fancy an expert entering one's bee-garden clad in a diver's dress, or divers dresses, well saturated with water containing a disinfectant, frequently asking a kind attendant to '*spray*' him! I should think if he asked him to *spare* him, his request would be far likelier to be complied with. Fancy expert-in-chief B. being thus sprayed; his nose in the air sniffering in the carbolic fumes as some other old war-horse would smell the battle from afar! And then what has to be done unto him who standeth and manipulateth in a cold or damp suit? Who is to pay his doctor's bill for rheumatic fever?—X-Tractor, *Horsforth*.

BEES AND RIPE FRUIT. (936.)

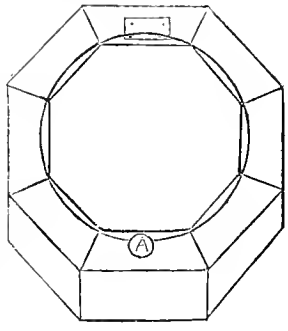
[954.] I noticed bees attacking ripe fruit last year during very dry weather when mignonette and other bee-plants were quite neglected by them. I thought perhaps the flowers were too dry to attract the bees, and had them well watered in the evening. Next day the bees had neglected the fruit entirely, and were quite busy amongst the mignonette.—H. C.

HONEY AS FOOD FOR INFANTS.

[955.] I was glad to see your remarks on honey as food in to-day's paper, and can give a good instance of its value. We have a *fine* infant just being weaned. His food was sweetened with honey while the supply (the last pot) lasted. When the supply was gone, the food was sweetened with *sugar*, and he was troubled with sickness after every meal from his very strength and heartiness. I scoured the country, and secured more honey, on using which again all sickness ceased. This is worth knowing by all (or rather, I should say, the *few*) mothers who have the sense to look after their children properly.—Pater.

HUMBLE BEES.

[956.] I am a bee-keeper, but it is only of Humble-bees. My father has some hives which really were bought for me, but I found the honey-bee is not to be played with, so I resigned from that part of bee-keeping. Last summer I had my humble-bees. They were jet-black, with a dark-red abdomen. I have tried to find out the name of this bee, but did not succeed. I also had the queen of my small stock, of about fifty bees, and she was distinguishable by her shiny abdomen, which was bare,—not covered with hairs, as the workers were. I also had what I called drones in the same hive, and they were yellow and black bees, but with a red abdomen. Perhaps you would like to know what sort of a hive I had. It was a clock-case, with the works taken out, and for the doorway was a hole where the catch had been. Here is a sketch of my hive.



I read in the *B. B. J.* of a children's column being proposed, but I am sorry to never have seen any appearance of it. I would willingly be one of the correspondents.

But to return to my narrative.

While I was looking in my hive once, I saw a bee busy opening one of the oval cells which contained young grubs, and presently, up comes another bee (which I judge was the queen), and drove it away, after which it proceeded to fasten up its young. When it had finished, it went away again. Soon after, up came the other bee, and began opening; then the queen chased it away, and while it was chasing the other one, other bees came and continued opening the cell. So Mrs. Queen had her work set, but finally she drove them all away. Can you tell me the reason of such proceedings?

My bees also carried in pollen, which they stored in cells and sealed, as well as honey.

When winter came on, I took them into the attic, to try and keep them till spring, but did not succeed. Could you tell me how I might keep them alive through winter? I am going to try again this next summer.—Darcy R. Grimshaw (age 13), *Horsforth, Leeds*.

[We have been very much pleased with your letter. It gives tokens of an observant mind; and when you grow older you will continue to find much that is lovely and wonderful in the works of Nature to engage your attention and to fill you with good thoughts. We cannot explain the opening of the cells containing the larvæ, but perhaps humble bees, like wasps, destroy the larvæ towards the middle of autumn. It is only the fertilised females survive the winter, and they spend the winter away from the parent nest. We shall be pleased to hear from you again.—Ed.]

SPARE COMBS.

[957.] I have just had your pamphlet on *Doubling and Storifying*, which, I presume, was written principally for the benefit of amateurs like myself; but there is one difficulty connected with it which I should be glad if you can help me in getting over. I must state first that I have only been keeping bees in bar-frame hives for two years, and have now nine stocks, all, I believe, healthy and strong; but I have no spare combs, and you state that in order to work this syssem to the best advantage it is necessary to have a *large number* of frames of empty comb. I shall be glad, therefore, if you will state in the next number of the *Bee Journal* how these can be best obtained, whether it would be right to give the strongest stocks foundation *at once* or *later on*, and whether syrup or dry sugar would be best give them at the time.—William Holman.

[You can give your strongest stocks comb-foundation to work out. If they are strong enough, we should

place a hive filled with frames of foundation below the stock. This will give them room, and they will build downwards. As the brood in the upper storey hatches out, if any honey is coming in, the cells will be filled with it, and the lower storey used for brood. When there are bees enough to fill the two storeys, put a third, also filled with frames of foundation, at the bottom. In this way you will soon get a stock of combs. You can feed with syrup as long as the bees are not able to get enough food, but stop as soon as they do. See also page 103 of Cowan's *Guide-Book*.]

CALVERT'S SOAP.

[958.] I am glad to see mentioned in the *Journal* of the 28th ult., under 'Useful Hints,' that you recommend experts to disinfect their hands or clothes after manipulating foul-broody hives before proceeding to the next apiary. This I think extremely necessary, and can recommend for such a purpose a soap manufactured by Calvert & Co. for doctor's use, and sold in small tablets in a tin box that can be put in the waistcoat pocket.

I have for some time used their carbolic soft soap for washing out the interior of my hives each spring. I am thankful to say we are not troubled with foul brood here, but I mention the soap for the benefit of my fellow-bee-keepers.—B. Le Neve Foster, *Ewhurst, nr. Guildford, May 4.*

HOW LONG DOES A WORKER-BEE LIVE?

[959.] I can state as a positive fact that I have several, probably some thousands of bees in my apiary at this moment who cannot be less than twenty months old. The proof is this. In October 1885 I took away the queens from the two orange-banded—probably Ligurian—stocks in my garden. There has been no other foreign queen in the apiary since that time. They killed the brown queens that I gave them, and in April 1886 were broodless. I gave each of these hives at that time a frame full of brood from other hives, hoping they would hatch out queens; but no, in May they deserted their hives, quartering themselves, with or without invitation I cannot say, on their neighbours, No. 7 and No. 2, for whom they did a great deal of light skirmishing duty during last summer. To-day about one bee in every ten in No. 7 is orange-banded. I have not observed No. 2 quite as closely, but I see plenty of them there also on the alighting-board. These have all certainly survived their second winter, and I do not observe that any of them yet have that dark, polished appearance which I take to be a mark of a very old bee.—C. C. James, *Papworth St. Agnes Rectory, May 1.*

[Is it possible that the queen in No. 7 has been crossed with a Ligurian drone? We have never heard of such a case as worker-bees living for twenty months. —Ed.]

TRANSPARENT ROOFING.

[960.] The squire of my parish has just sent me own a pattern of Miether, Robbins & Co.'s transparent wire-wove roofing for my sheep-houses. I think it would be found suitable for roofs of hives. I intend to try it; it is a non-conductor. Sheets five feet by four feet, price sixpence per square foot. Their address is 83 Upper Thames Street, London.—Rector, *Buckland Filleigh.*

What Bees Gather.—One remarkable circumstance about bees is the number of commodities of which they are either the collectors or confectioners. Besides honey and wax, there are two other distinct substances which they gather—bee-bread and propolis. Before we knew better, we thought, probably with most of our readers, when we saw a bee 'telling from every flower the virtuous sweets,' with his legs full of the dust of the stamens, that he was hurrying home with the wax to build his cell, or at least with the material wherewith to make that wax. We thought of Titania and her fairies, who 'for night tapers crop their waxen thighs,' and many other pretty things that poets have said and sung about them; or, if in a more prosaic mood, we at least conceived that, if not furnishing fairy candles, they were laying the foundation for what Sir F. French calls 'the gentleman's lights.' No such thing. Their hollow legs were filled with the pollen or farina of flowers, which has nothing whatever to do with the composition of wax, but constitutes the ambrosia of the hive—as honey does its nectar—their bee-bread, or rather, we should say, bee-pap, for it is entirely reserved for the use of their little ones. Old Butler had so long ago remarked that 'when they gather abundance of this stuff (pollen) they have never the more wax; when they make most wax they gather none of this.' In fact they store it up as food for the embryo bees, collecting from thirty to sixty pounds of it in a season; and in this matter alone they seem to be 'unthrift of their sweets,' and to want that shrewdness which never fails them, for they often, like certain over-careful housewives with their preserves, store away more than they can use, which, in its decomposition, becomes to them a sore trouble and annoyance. They are said always to keep to one kind of flower in collecting it, and the light red colour of it will often detect them as the riflers of the mignonette bed; but we have seen them late in the season in layers of different colours (not collected at the same time probably), and sometimes their whole body sprinkled with it, for they will at times roll and revel in a flower like a donkey on a dusty road.

Profitable Bee-Keeping.—'My object is to induce cottagers living in the country to keep bees; first of all, as a means of eking out a too scanty livelihood, and, in the next place, as a rational amusement and most instructive pursuit. There are, in fact, within the reach of our labouring population few pursuits so interesting and so profitable as this of bee-keeping. It has this further advantage, that it demands comparatively but little attention, and interferes with no other occupation or duty. Nor is the capital required to commence bee-keeping beyond the reach of our labouring poor. A swarm in May, a straw hive or skep [or bar-frame hive] in which to put the bees, and an old bench, or the stump of a tree, with a hackle to shelter the hive, are all the needful stock-in-trade of the adventurous bee-keeper. A little saving on the part of an industrious man will soon supply what is wanting. To wealthier bee-keepers I would suggest the gift of a swarm as one of the most satisfactory ways of helping a poor family, where there is sufficient intelligence and a disposition to pay attention to the bees. But when once the bees are there, and well established, all expense ceases. With moderate but sufficient care they ought in a year or two to pay the rent of house and garden, and add, besides, many little comforts which few of our labouring poor are able to command. It is surprising how few bees are kept in England, compared with the number of hives one sees in other countries. Thus we import from abroad immense quantities of honey and wax every year, while many hundreds of tons of these commodities are left ungathered in our own fields and woods. A bountiful Providence has given to us no lack of the "fatness of the earth," which honey and wax may most fitly be called. In some years it superabounds in most astonishing quantities, but too often there are no labourers to gather in the riches, and they are lost. Even where bees are kept they are frequently mismanaged, if not utterly neglected; so that not a tenth part of the honey is harvested which might be collected.' After telling how, in a single season, he obtained 2 cwt. of honey, besides the wax, from seven hives, *without destroying the bees or depriving them of their winter supply*, the rev. gentleman adds: 'I would

say, then, to our cottagers in town and country, "*Keep bees.*" Everywhere, save perhaps in London and a few other large cities, bees may be kept profitably—in some places, of course, more profitably than in others. On an average, every stock-hive that has well survived the winter should yield, in tolerably good seasons, from ten to twenty pounds of honey in caps or boxes, without destroying the stocks. It will thus be seen that ten hives, at this rate, should yield 5*l.* to 10*l.* per annum, supposing the honey to fetch only 1*s.* per lb. I repeat, therefore, to our cottage friends, "Keep bees." Let me add, "*Take care of your bees.*" It is worth while to manage them well; the more you look after them, without over-much meddling, the better they will pay. The bee-master's eyes should be frequently upon them, especially in the busy swarming time. Here his wife and children may greatly aid him by their watchfulness. Lastly, I say, "*Never destroy your bees.*" The practice of "burning" or "brimstoning" bees is about as wise as killing a goose for her eggs. A more wasteful or mischievous proceeding there never was—to say nothing of the cruelty of it. Those murdered bees—as many of them as survived the winter—would have been as industrious as ever on the return of spring, and have well made up to their master for his kindness in sparing their lives. Of course it follows that, if hives are never to be destroyed, *the bees must not be robbed of all their stores:* there must be moderation in plunder. Some honey must be left in the hive to keep them alive and in health during the winter and early spring months. Sound judgment, too, must be exercised as to the *time* when to rob them, as well as the *quantity* which may safely be taken.'—Rev. P. V. M. Filleul.

Echoes from the Hives.

Beverley, April 29th.—Again I have to report favourably of my bees, notwithstanding the very cold wind, which has kept them more or less at home since my last report, except when the sun shone. However we have just had three consecutive sunshiny days, with the wind, although cold, very moderate, and with the gooseberry-trees, &c., in full flower; the bees have made the most of this favourable time, pouring into the hives laden with pollen and honey, and the perfume can be smelt yards away. Finding that some of my strong hives had risen considerably in weight, I examined a few of them and found combs filled from top to bottom with new honey, of course unsealed, the strong perfume telling plainly from whence gathered. Some of these hives are crowded on eleven and twelve standard frames, and should we have fine weather I must give more room either in the shape of more combs or sections. I hesitate to give crates of sections on account of the sharp frosty nights, and the consequent difficulty the bees have in building comb; neither can I extract the honey, it not being sufficiently ripened. This is just a time when great care is needed, as should we have cold set in for any length of time, as we had last year, the bees will want all their stores. The difference between my strong hives and weak ones is plainly shown at dusk, for while the former are roaring like a furnace, the latter are still as death.—F. Boyes.

Broadstairs, Kent, May 7th.—The weather has been rather cold lately, and I do not remember having so much rain at this period for some years; Broadstairs being, as a rule, the last place for rain. The old local proverb runs, 'When England wrings Thanet sings.' I have doubled the two strongest stocks (covering nine frames each), placing brood combs in doubling-box, and sheets of foundation below in body-box. By-the-by, is 'doubling' the best term for so treating a hive; should it not be 'ekeing?' Those stocks covering six or seven frames I hope to double in about three weeks time; and shall try a couple with quarter-inch starters in body-box as a non-swarming safety-valve, treating the stock as though no empty space existed below. The stocks generally have wintered very well, thanks to the kindly attention of our local expert during my absence. I cannot say I have been uniformly successful in making stocks from condemned bees. One lot has a patch of brood about four inches diameter, and just enough bees to cover it. They are now packed up, with cork-dust to the right of them, cork-dust to the left of them, cork-dust in the front of them, cork-dust at the back of them, cork-dust on the top of them. All this cork-dust absorbs the sun's warmth in the day time, and gradually gives it off at night; and I think with a few frames of hatching brood from another stock that lot ought to pull up. Gooseberry bloom is nearly over, apples just beginning. As for wasps, though in the garden a great deal I have not yet seen a single specimen.—T. W. Oetzmann.

North Leicestershire, May 7th.—Everything is very backward here for the time of year, and the bees do not seem to make much progress, as there has been very little weather fine and warm enough to tempt them out. To-day—at least, during the morning—they were working hard on the lesser celandine, currant, gooseberry, and plum blossoms, and arabis. Nothing else ready.—E. B.

'Honey Cott,' Weston, near Leamington, May 9th.—After many changeable and stormy days, we seem to have drifted into some nice weather for our bees, which they have thoroughly enjoyed. With plum-trees in full bloom, dandelion coming out, wood anemone, and other flowers, there is a prospect of a goood start for the season. I have found in several instances, where the bees had enough food and were left to their own sweet will, that they have not bred up so well as others that have been stimulated; whereas, in a few other cases, those with plenty of food have done exceedingly well. There has been any amount of young bees showing themselves during the last fortnight. Have been transferring a few stocks that I bought last autumn, and hope, with a little attention, to build them up in time for the clover. Am hoping to do a little spreading of brood if the fine weather continues, though it is just possible we may have (as we generally do) blackthorn winter.—John Walton.

Belfast, May 6th.—Since my last, I have been doing 'Amateur Expert,' and I found lots of brood and plenty of stores in several of the hives visited. I am *glad* to say a favourable change has taken place in the weather, which is now warm and showery and bees are doing good work. I have tried my stock on the dry sugar (Porto Rico), and will be able to report favourably or otherwise later on, have fed my thirty hives (which I was fortunate enough to bring through the winter) on dry sugar for stimulating; and if it is what is claimed for it, it will do away with one of the troubles of modern bee-culture, viz., making syrup for a number of hives.—P. McHenry.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

H. L. S.—The sample of enamel cloth has been received, and it will prove serviceable.

T. Nixon.—1. If your queen is now laying only drone eggs, there is no prospect of her being refertilised. Being a young queen, her ovaries have been injured in some way. You must unite or get a fresh queen. 2. If your bees are obtaining a sufficiency of natural food, you have done right in stopping the supply of artificial.

H. G. Birch.—*Doubling.*—If you place a hive full of bees above or below, you should spray them with scented syrup as you propose. It is much safer to place the frames alternately, and unite in the usual manner. The old queen of 1885 is worthless, and you would get nothing for her.

F. Nell.—*Chapman Honey Plant.*—We are not surprised that you cannot get seed in Sheffield, and that no plant of this name is known. There is, in fact, no plant of this name here; and it has been named *Chapman Honey Plant* because Mr. Chapman is supposed to have been the first who called attention to it as a honey-yielding

plant. You will find it is perfectly well known by the English name of 'Great Globe-thistle,' or by its botanical name of *Echinops spherocephalus*. We have plenty of English names for flowers without adding to the confusion by introducing new ones given without any sense or reason. We send you some seed.

H. J. KNIGHT.—1. *Dry Sugar Feeding.*—Mr. Knight appears to have fallen into the error of making his bees rely upon dry sugar during winter. The process is in many quarters greatly misunderstood; and as the originator of the system, I am glad of the opportunity to warn the uninitiated, and to repeat what I have many times stated, that bees cannot exist upon dry sugar as their only winter food. In fact, neither that nor candy should be given until the approach of spring, unless in cases of extremity; and on no account ought a stock to begin the winter with either. Porto Rico does well as a winter food, but it must be stored by the bees as syrup by the end of September. As soon as all surplus honey is removed in autumn, start with dry feeders; and then if in some cases there is not sufficient store, feed rapidly with syrup, so that the bees may settle down quietly before October comes in. Such store should last till April, when dry sugar may again be resorted to with advantage. 2. *Feeding Swarm hived on Combs.*—A swarm hived on combs would be far better without feed of any kind, as a rule; but if the weather is very bad, a lump of Porto Rico over the feed-hole pressed down tight would keep them going, while the cells would not be clogged with syrup.—S. SIMMINS.

W. S., *Aboyne.*—1. *Dead Queen.*—See answer to W. P. When manipulating during spring the bees will occasionally 'ball' the queen; if she is killed her body would be cast out of the hive. There is a very good chance of a virgin queen getting fertilised now, although less probability in your locality. 2. *Bees.*—The bees sent are Ligurians, of course it is impossible to say with certainty unless a description of the other bees in the hive is sent. 3. *Laying two or three Eggs in Cells.*—This is not unusual, and is more observable when her laying space is restricted.

W. P.—*Death of Queen.*—Weak starving colonies frequently vacate their hives and join other stocks, the queen of this colony is refused admission, and is cast to the ground, or the queen has been found past work, and has been dethroned; this may be the case with yours. Examine your stocks and note whether queenless or not.

J. H. D.—1. *Stimulating.*—It will be quite sufficient for stimulating purposes to uncap your honey cells once a week; in fact this plan would be better than syrup feeding. 2. *Moving Hives.*—Yes; if the hive is very strong and on the point of swarming. Empty combs are preferable to foundation, give two combs of brood if possible.

BEES — NOVITAS.—*Italian Hybrids.*—The bees sent are Italian hybrids; the colony may have got hybridised whilst in your possession. Any of the various bee-appliance manufacturers advertising in these columns. It does not follow that because your hybrids are so vicious that all are so, we have some very gentle Italian hybrids; they are splendid workers.

R. E. C.—1. *Cowan Hive damp.*—You do not say what kind of quilt you use. It is clear that the dampness in the inner hive arises from condensation of the vapour which, from defective ventilation, cannot escape. 2. *Musty Smell in Feeders.*—As the food is consumed, air, to take its place, enters from the hive; and as this must smell musty from the damp, the smell is accounted for. 3. *Leaking Raynor Feeders.*—The cause is most probably badly-fitting caps to the bottles. If air can enter except through the holes, it will allow the food to run out. 4. *Spare Combs.*—The granular dust which you find in the bottom of the box may be owing to the pollen being attacked by mites. 5. *Drone Brood in Worker Comb.*—This seems to point to some injury to the queen, as she is in her second year only. Perhaps in a short time she may discontinue drone-egg laying. If she does not, she must be removed. 6. *Queen Raising.*—Even if you have no opportunity of raising queens to replace old ones in the best manner, you can with little more trouble do better than you do. Instead of killing the old queen, and allowing the bees to raise one from her eggs, after four days destroy all commenced cells, and give them a comb of eggs from a young and vigorous queen. You will get a better queen raised. If your stocks are strong and drones flying, you may do it now; and your young queen will be in lay when the honey flow is on. If you delay, you had better leave alone until after the flow. 7. *Varnishing Interior of Hive.*—There seems an advantage in having a clean, washable surface; and as to impermeability to air, there can be very little difference, if any, between half-inch wood varnished and unvarnished.

J. BROWN.—The probability is that the bees were starved, and therefore deserted the hive.

P. ROBBIN, and H. WORTH.—The portions of comb forwarded were not affected with foul brood, but with chilled brood.

H. O.—Put the foundation in the saw-cuts, and wire from side to side as proposed.

From M. A. de Zoubareff we have received a pamphlet on honey and its uses, entitled, *Myod kak peishcha e kak leakarstvo.* This will be a very useful little pamphlet for the bee-keepers of Russia to distribute, as it sets forth the various uses of honey, with recipes gathered from English, German, and French works. The same author has also sent us the numbers of the Russian *Bee Journal* for this year, entitled, *Roosskee ptchelovoodnee liestok,* of which he has become the editor after the death of Professor Boutleroff. The *Journal* comes out monthly, is well got up, and carefully edited, and will be sure to do good to bee-keeping if the future numbers are as carefully written as those we have seen. We shall have occasion sometimes to give extracts from them.

We have received from Mr. Francisco F. Audreu a pamphlet in Spanish, entitled, *La Apicultura Mobilista en Espana.* It consists of 38 pages, and is an introduction to bee-keeping in moveable comb hives. As improved methods of bee-keeping are just now being introduced into Spain, this little pamphlet will be useful in giving an outline of the subject, and we wish it every success.

Received Schedule of Prizes from the Leicestershire Bee-keepers' Association of the Exhibition of Hives, Bees, Honey, and Appliances, to be held at Ashby-de-la-Zouch, on July 28th and 29th.

Received Schedule of Prizes of Aberdare Horticultural Society's Show, to be held at Aberdare on Thursday, August 18.

We have received from Mr. Leslie Tait, Foveran, near Aberdeen, specimens of sections manufactured by him. They are one piece V-grooved, with and without bee-passages on all four sides, and also two-piece dovetailed sections. They are made of different qualities of wood, and the prices range from 15*s.* to 24*s.* a thousand.

Received from Messrs. Abbott Bros. a sample of a material for aprons, shirts, quilts, tent-screens, &c. It has for pattern cells with queen, worker, and drone.

We understand that Mr. John D. McNally, a member of the family of McNally, well known in the Scottish apicultural world, has been appointed one of the correspondents for the bee department of *The Farming World,* formerly the *Scottish Agricultural Gazette.*

Show Announcements.

Giving Name and Address of Secretary, Date and Place of Show, Date of Closing Entries. Terms: Three Insertions and under, Two Shillings and Sixpence; additional insertions, Sixpence each. No charge made to those Associations whose Shows are announced in our general Advertising Columns.

June 15, 16.—Wilts Agricultural Show. Rev. W. E. Burkitt, Secretary.

June 23, 24.—Suffolk Agricultural Show at Bury St. Edmunds. Entries close June 6. J. Huckle, Secretary.

July 11–15.—Royal Agricultural Show at Newcastle-on-Tyne. Entries close May 12. J. Huckle, Kings Langley.

July 20-22.—Lincolnshire Agricultural Society at Spalding. Entries close July 4. R. R. Godfrey, *Secretary*.

July 26, 27.—Warwick Agricultural Society at Sutton Coldfield. J. N. Bower, Knowle, Secretary.

July 27.—Bishops Waltham Show. (Hants and Isle of Wight Association.) H. W. West, Hon. Sec., Swanmore House, Bishops Waltham.

August 3-5.—Yorkshire Agricultural Society at York. Secretary, H. L. Rickards, Poole, near Leeds.

Business Directory.

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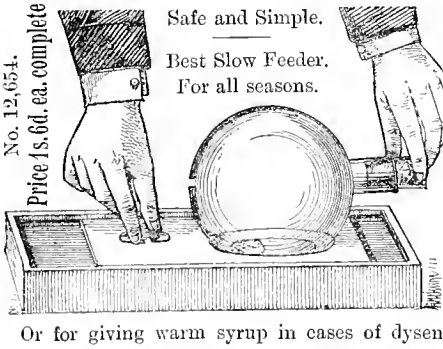

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THE
BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, St. Martin's Lane, W.C.'

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Editorial, Notices, &c.

OUTLINES OF BEE-KEEPING FOR BEGINNERS.

(*Continued from page* 180.)

VIII.—HIVES WITH MOVEABLE AND FIXED COMBS.

1. According to the old style of bee-keeping a swarm was placed into a skep, and the bees were allowed to fill it with combs, which they built in any direction they liked. In such skeps the bees attach the combs to the top and sides, so that they form part of the dwelling and cannot be removed from the hive without cutting them out; boxes were worked in a similar way. This is called the *fixed-comb system.*

2. According to the improved modern system of bee-keeping, the swarm is placed into a box fitted with frames, to which are fixed, on the under side of the top-bar, strips of comb, or comb-foundation, which guide the bees and induce them to build their combs in the direction in which the bee-keeper wishes them to be. The bees do not attach the combs to the sides of the hive, but build them inside the frames. These frames of comb can be easily taken out, their position inside the hive altered, or they can be removed and replaced by others. This is called the *moveable-comb system.*

3. In order to derive the greatest advantage from the moveable-comb system it is very important that only one size of frame be used in the apiary, and this must fit into every hive.

4. The British Bee-keepers' Association adopted some years ago a Standard frame, which has come into general use, and we advise the beginner to use no other. The outside dimensions are 14 inches long by 8½ inches deep, the top bar being 17 inches long, ⅜ths of an inch thick, the bottom bar ⅛th of an inch, and the side bars ¼ of an inch thick, the width being ⅞ths of an inch.

5. The hives should be made so as to leave a ¼ of an inch passage at the ends of the frames, and not less than ⅜ths inch at the bottom. The dimensions of a hive to suit the Standard frame would be 14½ inches wide and 8⅞ths inches high, inside measurement. The length will be in proportion to the number of frames used, allowing 1½ inches for each frame. The hive can be extended to take any number of frames, but generally ten or eleven are used. For a ten-framed hive, placing them at 1½ inches from centre to centre 15 inches will be required, and this space will easily take eleven frames when they are wanted closer together, or at a distance of 1¼ inches from centre to centre.

6. The frames are frequently provided with broad shoulders, or metal ends, to keep them the proper distance apart, and these have entirely superseded distance-pins, nails, staples, screw-eyes, &c., used formerly so extensively abroad and adopted by some bee-keepers here. Metal ends are made of different patterns, Carr's having the advantage that the bee-keeper is able to alter the distance of the frames from 1½ to 1¼ inches from centre to centre.

7. The projecting ends of the frames rest on the top edges of the hive, which is here ⅜-inch lower than the sides. When the frames are in the hive the top edges of this and the upper sides of the top-bars will be level.

8. One or two division-boards are necessary for each hive, so as to be able to reduce its size to the strength of the colony. The division-boards fit close inside the hive, and are placed on either side of the frames, the hive being made a little longer to receive them.

9. A moveable bottom board must be provided as well as an entrance at least 8 inches long and ⅜ths of an inch in depth. This entrance can be closed more or less as needed by means of slides or blocks. In front of the entrance an alighting board should extend to some considerable distance, and slope to the ground.

10. Over the tops of the frames is placed what is called a quilt, usually consisting of a piece of unbleached calico, and three or four thicknesses of drugget, or a chaff-cushion, box, or some suitable warm material.

11. The hive must have a roof constructed in such a way that there will be room under it for placing a feeding bottle or racks of sections (to be described later). A box similar in size to the hive will do, with strips of wood nailed on the lower outside edge, to prevent rain driving in at the joints. The sides and back can be cut down, to give an inclination to the boards fixed on it so that rain will run off the roof at the back, instead of dropping in front of the entrance. The boards should project at least 3 inches all round, and the roof must be made waterproof.

12. A single hive consists of one box fitted with frames, division-boards, roof, &c. A *storifying* hive is composed of two or more such hives placed one above another, with one roof over them.

13. The more carefully the hives are made, and the more accurately the frames fit, the greater will be the ease of manipulating them.

14. If the bee-keeper wishes to make his own hives he had better purchase a good one as a pattern, but in any case he would do better to procure the frames of a hive-maker, unless he has special tools for making them accurately.

15. Good hives are now so cheap that it will hardly pay the bee-keeper to make his own. The prices range from 10*s.* to 15*s.* for such a hive as we have described.

IX.—What Bees Carry into the Hive.

1. Bees do not require to be fed daily like other domestic animals, but collect their own food. They store more than they require for their own use, and only require the bee-keeper's assistance if he takes too much from them, or the season has been a bad one. They live upon the sweet juices of plants, which are converted by them into honey, the fertilising dust of flowers (pollen) and water.

2. The best food for them is the *nectar*, which they find in the flowers of many plants. They, however, also collect the sweet juices which are found on the leaves of some plants, and even the liquid excreted by insects, such as the *aphis*, which collects on the leaves. This is called *honey dew*.

3. From these juices the bees make honey. They convert the nectar into honey by adding a liquid secretion (saliva) which has the property of changing the *cane sugar* of the nectar into the *grape sugar* of honey. The quality of the honey depends, like milk, upon the raw material from which it is made; that from nectar being the best, whilst that from honey-dew is usually very dark and inferior in flavour.

4. Sweet liquids are swallowed and carried into the hive by the bee in the *honey sac*; water is also carried in the same way, whereas pollen is packed in hollows on the hind-legs called *pollen baskets*.

5. Bees also collect a resin-like substance called propolis, which they obtain from the buds and limbs of trees. It is used to seal up every crevice about the hive.

6. When the bees return to their hive laden, they disgorge the honey into the cells. Both honey and pollen are stored for future use. Water and propolis are used at once, not stored in the cells, and are only collected as they are wanted.

X.—Swarms and Swarming.

1. If, in spring, a colony has its hive full of comb containing brood, is crowded with bees and food is coming in plentifully, it makes preparations for sending off a swarm. Queen-cells will be constructed in which an impregnated egg is placed. In three days the egg hatches, and a grub (*larva*) crawls out; this is fed on rich food for five days, after which it no longer requires feeding, and is sealed up by the workers in its cell, where it spins a cocoon, and changes into a *chrysalis*. In about sixteen days from the time the egg was laid, the queen, in a perfect state, is ready to leave the cell. The young queen makes, with its jaws, a circular cut in the cell-cap, forces it open, and crawls out. The old queen does not usually wait until this takes places, but generally soon after the queen-cell has been sealed over, selects a fine day, and between the hours of ten o'clock in the morning and four in the afternoon, leaves the hive with part of the population. This is called *swarming*.

2. The bees which leave with the old queen form with her the *first swarm*, the hive from which they left being the *stock*. In a good season, if the stock be strong, other swarms will issue as the queens mature and hatch out. These are called *casts* or *after-swarms*. Casts have young queens, and are therefore generally better than first swarms, provided they have plenty of bees.

3. The first cast or second swarm usually leaves the hive on the ninth day after the first, but occasionally sooner. Sometimes third, fourth, and fifth swarms may be thrown off at intervals, generally, of one or two days. These usually contain so few bees that they are worth very little, and should be united to others.

4. In the south of England, in favourable seasons, swarming begins about the end of April, but is sometimes delayed until the middle of June. In the North and in Scotland swarming takes place much later, frequently not beginning before the end of May.

5. *Early* and *large* swarms are profitable; *late* and *small* swarms are worth little, although by judicious management they can be built up into strong colonies before the winter.

(*To be continued.*)

BEES AND HONEY.

The honey-bee has been an object of great interest from the very earliest ages: the most ancient historical records make frequent reference to it. 'A little balm and a little honey' formed part of the present which Jacob sent into Egypt to Joseph in the time of the great famine. The 'busy bee' figures also in Greek as well as in Hebrew history. The little creature has given a name to many females of high degree. The Hebrew name of the bee (Debôrah) was given to Rebekah's nurse, as also to that magnanimous prophetess whose courage and patriotism inspired the flagging zeal and waning energies of her dispirited countrymen. The Greek name of the bee (Melissa) was given to one of the daughters of Melissus, king of Crete. It was she who, with her sister Amalthæa, is fabled to have fed Jupiter with the milk of goats. She is said, also, to have first discovered the means of collecting honey from the stores of the bee, while some ancient writers inferred that she not only bore the name, but that she was actually changed into a bee.

Another Greek story tells of a woman of Corinth, also bearing the name of Melissa, who, having been admitted to officiate in the festivals of Ceres, the goddess of agriculture, afterwards refused to initiate others, and was torn to pieces for her disobedience, a swarm of bees being made to rise from her body.

The old Greek name for the bee seems to have fallen into disuse in this country as a name given to females, though there can be no reason why its use should not be revived, for it is at least as melodious as the Hebrew name of the same significance, still applied to many a

matron and maiden—a name which is expressive of honeyed sweetness, as also of unwearied energy and untiring industry.

Those who have had personal knowledge and experience of bee-culture will bear out the remark that bees are not particular as to the size or the position of the home in which they choose to dwell, so that it suffices for them to carry on with security their wonderful operations. In their wild state, cavities of rocks and hollow trees are alike available; and in their domestic conditions they have no preference for a straw skep over a wooden box, nor for the wooden house over the straw castle.

The bee, which, while under proper control and management is one of man's best friends, proves, when assailed by him in any way, a terrible adversary. Allusion is made to this by Moses in his story of what befell the Israelites in their wilderness sojourn: 'The Amorites came out against you, and chased you as bees do, and destroyed you.' The strength and force of their sting is such as to enable them to pierce the skin of the horse and other large animals and kill them. Their ordinary speed when in flight is from sixty to eighty miles an hour, and they have been known to fly past the windows of an express train when travelling at full speed in the same direction. The manner of attack is to dash straight at the object aimed at; and commonly when excited by the presence of some unknown spectator, and especially by the intermeddling of some undexterous or mischievous person, they will attack the face, aiming especially at the eyes. When, therefore, the thousands which inhabit a single hive are aroused by the sound of alarm, well understood by all the inmates, to repel an invader, they sally forth with a courage and determination which none can withstand, attacking their foes on every side with a fury it is impossible to resist. King David must have witnessed just such a scene, which he reproduces in his description of the fierce attacks, the determined onslaughts of his bitter and unrelenting foes: 'All nations compassed me about . . . they compassed me about like bees.'

Somewhat recently, the mishap of a porter in handling a box of bees in transit by railway created an amusing and rather alarming scene at the station. There was a general stampede of passengers and officials flying in every direction, chased by the infuriated bees. It was only when some one, skilled in the management of bees, catching the queen and placing her in the box, restored confidence and quiet, for, flocking loyally to her standard, the whole colony returned to the case, which was in due time forwarded to its destination. But even this was a small affair compared with what is related in ancient history of persons being driven from their habitations, and the inhabitants of an entire town being compelled to flee before myriads of bees. Elianus, who flourished about 200 A.D., gives an instance of this in one of his seventeen books on animals. Mungo Park, too, the African traveller, mentions a modern instance which took place near Dooproo: 'We had no sooner unloaded the asses than some of the people, being in search of honey, inopportunely disturbed a large swarm of bees. They came out in immense numbers, and attacked men and beasts at the same time. Luckily, most of the asses were loose, and galloped up the valley; but the horses and people were very much stung, and obliged to scamper off in all directions. In fact, for half an hour the bees seemed to have put an end to our journey. In the evening, when they became less troublesome and we could venture to collect our cattle, we found many of them much stung and swelled about the head. Three asses were missing, one died in the evening, and another next morning. Our guide lost his horse, and many of the people were much stung about the head and face.'

The fierceness and unrelenting cruelty of the ancient Assyrians, and the terror with which their swarming multitudes filled the inhabitants of the lands they invaded have caused them to be likened to bees in their much-dreaded attacks on such as have aroused their anger: 'And it shall come to pass in that day that the Lord shall *hiss* for the fly that is in the uttermost part of the rivers of Egypt, and for the bee that is in the land of Assyria. And they shall come, and shall rest all of them in the desolate valleys, and in the holes of the rocks, and upon all thorns, and upon all bushes.' The 'hiss' was simply a call, in allusion to the note of the queen-bee, as she issues her royal mandate to her ever royal subjects to prepare for action. It has also been supposed to allude to a custom prevailing in very ancient times in connexion with bee-culture, or honey-raising in the neighbourhood of rivers. During the dry season, a number of hives would be placed on a flat-bottomed boat, in the charge of an attendant. Very early in the morning the boat would begin the day's voyage, gently gliding down the river, the bees sallying forth with the sun to collect their golden stores and deposit them in their several hives, which they commonly know by some mark. The innumerable flowers on the banks of the rivers offered them a fine harvest-field. At the approach of evening, the well-known whistle or 'hiss' of the care-taker—a decent imitation of the queen's own call—would bring them back to their hives in multitudes, when the boat would be paddled back to the farm or other place of rendezvous.

As an article of food, and as much-valued and even royal luxury, honey has been used from the remotest ages. Nor was it much, if any, less in request as a healing medicine for both inward and outward application. And though it may have fallen somewhat into disuse in these days, when many good things are overlooked, and when the artificial too often supplants the real, it may be safely predicted that the wide and rapid spread of bee-culture will induce a return to some of the wiser uses and methods and forms of adoption employed by our early forefathers, as well as stimulate to the new applications and new developments of its wondrous powers.

When and by whom mead or metheglin was first made from honey, could not be easily determined. The two words are not unfrequently applied to the same liquor; but that is not correct, as they are dissimilar. Both, however, are made from honey, sometimes also from the refuse or washings of the comb. Queen Elizabeth had such fondness for metheglin as to prescribe carefully how it should be made and with what variety of herbs it should be flavoured. In Wales, it long continued to be held in high esteem; and its various beneficial properties have been quaintly set forth in a letter addressed to Clifte the historian by the learned Welshman, Rev. James Howells (born 1594), brother of Thomas Howells, some time Bishop of Gloucester and Bristol. The uniqueness of the communication is the apology for its quotation in full:—

Sir,—To inaugurate a new and jovial new year unto you, I send you a morning's draught (namely, a bottle of metheglin). Neither Sir John Barleycorn nor Bacchus hath anything to do with it; but it is the pure juice of the bee, the laborious bee, and king of insects. The Druids and old British bards were wont to take a carouse hereof before they entered into their speculations; and if you do so when your fancy labours with anything it will do you no hurt; and I know your fancy to be very good. But this drink always carries a kind of state with it, for it must be attended with a brown toast; nor will it admit of but one good draught, and that in the morning; if more, it will keep a-humming in the head, and so speak much of the house it came from, I mean the hive, as I gave a caution elsewhere; and because the bottle might make more haste, have made it go upon these (poetic) feet:

J. H. T. C. Salutem et Annum Platonicum.

The juice of bees, not Bacchus, here behold,
Which British Bards were wont to quaff of old;

The berries of the grape with furies swell,
But in the honeycomb the graces dwell.

This alludes to a saying which the Turks have, that there lurks a devil in every berry of the vine. So I wish you cordially as to me an auspicious and joyful new year, because you know I am, &c.

Metheglin is no doubt a healthy beverage, containing an admixture of milk. Pallus Romulus, when he was a hundred years old, told Julius Cæsar that he had preserved the vigour of his mind and body by taking metheglin inwardly, and using oil outwardly. Metheglin and mead may be made very strong, and of course, they both contain some amount of alcohol. In Virgil's days, metheglin was used to qualify wine when harsh. He writes of

'Huge heavy honeycombs, of golden juice,
Not only sweet, but pure, and fit for use;
To allay the strength and hardness of the wine,
And with old Bacchus new metheglin join.'

Mead or metheglin was the nectar of the Scandinavian nations which they expected to drink in heaven, using the skulls of their enemies as goblets. Thus we read in Penrose's *Carousal of Odin*:

'Fill the honeyed beverage high;
Fill the skulls, 'tis Odin's cry!
Heard ye not the powerful call,
Thundering through the vaulted hall?
Fill the meathe, and spread the board,
Vassals of the grisly lord!—
The feast begins, the skull goes round,
Laughter shouts—the shouts resound.'

In England at the present time, mead, like many other old and excellent domestic compounds, has passed almost entirely out of use. In very few houses could it now be found. Here and there in a farmhouse where old customs linger, it may still be had; and it is still used for colds and other complaints, both in the case of men and cattle.

The revival of bee-keeping and the conduct of the enterprise on scientific principles will restore honey to its wonted place in the domestic economy; and if carefully studied and thriftily managed, the cultivation of bees and the product of honey may be made to form not only an important article of food and a considerable item of domestic revenue, but an ample source of amusement, and means of recreation healthful alike to body and mind.—*Chambers' Journal.*

THE SONG OF THE BEE.

Hail to thee,
Little brown bee!

After the winter long, I love to hear thy song,
To see thy shapely form, when the March sun lies warm
Upon thy prison-home, tempting thee forth to roam;
Thou bringest joy with thee, thou little busy bee.

I hear thy morning psalm amid the downy palm—
Now distant, now more near, faintly, then rising clear—
Telling forth the measure of thy toilsome pleasure;
Thou workest merrily, thou singest cheerily.

From golden crocus-cup gold-dust thou gather'st up,
Which, by true instinct led, thou dost transmute to bread:
Ah! thou alchymist bold, couldst but thy song unfold
Some of the mystery wrapped in thy history!

Herald of spring art thou. The robin from his bough
Sings loud, but what cares he how many flowers there be?
Strangely the cuckoo cries, the lark thrills from the skies,
But only thou dost sing for the earth's blossoming.

And when May, 'the merry month,' decks the wild cherry,
And makes the orchards gay; and all the fields display
Their wealth of colouring; and white-robed hedges fling
Their fragrance on the wind,—thou think'st it all designed
Especially for thee, and sing'st for very glee!
Swift on the heels of May the summer comes, each day
Bringing thee new delight; upsprings the clover white,
Whose dewy depths distil rich nectar—Drink thy fill!

And then, full soon, July; the great sun mounts the sky
And pours his fervid beams downright, and nature seems
To sleep, not a bird sings; and yet the still air rings,
To the accustomed ear, with music, loud and clear:—

For why? 'The limes are out!' and everywhere about
The honey-laden trees flit honey-laden bees,
The solitary song swells to a chorus strong,
And sun, and bees, and flowers, rule the enchanted hours.

Then the brief summer wanes; days shorten, night regains
Lost hours; a little while the purple heather bell
Glows on the distant hill, and then the song is still,
The merry toil is done, the shapely form is gone.

Farewell to thee,
Little brown bee!

—W. H., *Dorking.*

Foreign.

CHILI.

EXPORTS OF HONEY AND WAX FROM CHILI IN 1885.

HONEY.—

FROM	TO	KILOS.	KILOS.
Valparaiso, Talcahuano	Great Britain	190,935 + 131,576	= 322,511
Valparaiso, Coquimbo, Talcahuano	France	247,389 + 12,150 + 36,153	= 295,692
Valparaiso, Talcahuano	Germany	403,835 + 1,870	= 405,705
Valparaiso	Peru	920	= 920
„	Uruguay	25,700	= 25,700
„, Coquimbo, Talcahuano, Coronel	for ships' stores	1,692 + 135 + 2,002 + 1,360	= 5,189
Total exports in 1885			= 1,055,717
„ „ 1884			= 1,864,761
Decrease in 1885			= 809,044

WAX.—

Valparaiso, Talcahuano	Great Britain	21,730 + 5,712	= 27,442
Valparaiso, Coquimbo, Talcahuano	France	5,517 + 675 + 1,272	= 7,464
Valparaiso, Talcahuano, Coronel	Germany	47,880 + 177 + 261	= 48,318
Valparaiso	Belgium	3,558	= 3,558
Talcahuano	Ecuador	242	= 242
Valparaiso	Peru	973	= 973
„	Uruguay	4,780	= 4,780
Total exports in 1885			= 92,777
„ „ 1884			= 102,634
Decrease in 1885			= 9,857

Extracted from 'Estadistica Comercialde la República de Chile correspondiente al año de 1885.

FRANCE.

Société Centrale d'Apiculture et d'Insectologie.—This Society held another meeting in Paris on the 20th of last month. The communications handed in from several correspondents showed that the mortality of

stocks during March and April has been very great, even in apiaries where want of food was out of the question. It appeared, from the general tone of the remarks made, that many of the stocks which have succumbed gave no sign of decline in February, but, generally speaking, their populations dwindled away afterwards, and their queens died. The Professor of Luxembourg stated that, in his opinion, this was to be attributed to two causes, the first being that the majority of the queens which had died must have been old, and the second must be found in the fact that this year the cold lasted much longer than usual.

Among the communications received by the Society there was one from the Ministry of Agriculture enclosing a copy of his *Statistique Agricole* for 1885, from which it appears that the value of the honey exported during that year was 936,236 francs, and the imported 753,196 francs.

M. Hamet mentioned that wax from French colonies competed against that produced at home. The chairman suggested that it would be well to ascertain if this was a fact, and if so, to agitate for an import duty like in the case of wax from foreign countries.

With reference to the prizes which are to be awarded this season for 'well-kept apiaries,' M. Sevalle proposed that Messrs. Asset and Saint-Pée be added to the committee. The chairman replied that by adding the name of M. Sevalle himself, the author of the proposal, the committee would be constituted.

M. Ramé stated that a bee-section had been formed for the great Exhibition of 1889, viz., Group viii., class 76, to be called '*Insects utiles—Apiculture—Sériciculture, &c., et Insectes nuisibles.*' The committee appointed in connexion with this branch will be composed as follows:—Chairman, M. T. Blanchard, a member of the Institute; Vice-President, M. Ramé, a member of the Société d'Apiculture et d'Insectologie; M. F. Henneguy, Professor of the Versailles School of Horticulture; M. Balbiani, Professor at the College of France; and M. E. Menault, Inspector of Agriculture. Subsequently M. Ramé pointed out that bee-keepers intending to exhibit in that Exhibition should send in their declaration or application for space this year, to the end a suitable spot could be secured.

The chairman pointed out that, for the time being, bee-keepers should devote their attention to the preparation of exhibits for the September show.—*Apiculteur of Paris.*

ASSOCIATIONS.

LANCASHIRE AND CHESHIRE ASSOCIATION.

Mr. W. B. Webster of Wokingham will lecture on behalf of the above Association, in the Market Hall Coffee Tavern, Corn Market Street, Lancaster, on Friday evening, May 20th, at seven o'clock. The chair will be taken by the Rev. J. Bone.

WARWICKSHIRE BEE-KEEPERS' ASSOCIATION.

The annual meeting of the Warwickshre Bee-keepers' Association was held at the Grand Hotel, April 28th. The Rev. Canon Evans presided; and among those present were Mrs. Allen, Mrs. Ward, Mrs. Stuart, Miss Keyte, the Rev. W. K. Suart (lecturer), Messrs. J. N. Bower (hon. secretary), J. R. Inglethorp (assistant secretary), Jacob Rowlands, J. Y. Young, J. Cook, E. M. Pearson, C. Butler, J. Burman, E. Johnson, Ward, T. Warburton, and C. W. Summerskill (expert). The committee reported that there was a steady and increasing progress of the society. During the year more work had been done than in any previous year, and the society might be congratulated on its Notwithstanding this, it would be seen by the balance sheet that there was a pressing need for further and increased subscriptions to the society, otherwise some of its most useful operations, particularly as to expert's tours, would have to be curtailed. The receipts from all sources, including balance from last year, amounted to 124*l.* 3*s.* 6*d.*, and the expenses to 134*l.* 6*s.* 7*d.*, making a deficit of 10*l.* 3*s.* 1*d.* This deficit was accounted for by the increased endeavours of the committee to render additional help to bee-keepers by carrying out the autumn tour of the society's expert as well as the one in spring. The committee sincerely hoped that this deficit would at once be cleared off by members assisting in obtaining new subscribers, and by outstanding subscriptions for the past year being paid up. The bee tent had visited, in connexion with horticultural shows, the following places:—Kenilworth, Harborne, Quinton, Handsworth, Ullenhall, Nuneaton, Bedworth. The county show was held at Nuneaton on August 31st and September 1, in conjunction with the Warwickshire Agricultural Society. This was the largest show the society had held since its formation. The silver medal was awarded to Mr. D. Ingleby, Knowle; bronze medal to Rev. J. Sunderland, Eggington Vicarage; certificate to Mr. B. P. Walton, Weston. The judges were: Hives and appliances, Major Deykin and Mr. C. Butler; honey, Rev. J. E. Sale and Mr. J. Burman. It was proposed to hold a series of lectures in various villages through Warwickkshire during the coming spring, when all members residing in the neighbourhood were requested to attend. In concluding their report the committee begged to thank Mr. A. H. Foster for kindly placing his office at their disposal for committee meetings, Mr. J. Lawrence Hawkes for his service as auditor, the Rev. W. K. Suart for kindly lecturing in Birmingham, the judges who rendered their services at the county show, and other gentlemen who had in other ways rendered valuable assistance to the Association. The Chairman, in moving that the report be approved and adopted, said he was present at a meeting of the society at Leamington two years ago when prizes were distributed by Lord Leigh, and he was struck with the interest which seemed to be taken in bee-keeping. At the same time he was very much disappointed at not seeing more of the cottager classes present to carry off the prizes. There seemed at the present stage of the society rather a preponderance of middle-class members who carried off the prizes, but it was nothing more than might be expected. Cottagers as a class rather waited to see experiments tried by other people before they ventured themselves on an occupation of this kind. He had no doubt, however, if the Association persevered, the interest of its work would soon reach the humbler stratum of society whose welfare really the members of the society had mostly at heart when they joined. In a few years they would find the cottagers stimulated by the success of their neighbours, although they did not belong to the same social class, embarking upon this most interesting—and he trusted it would be to them profitable—pursuit. The Rev. W. K. Suart seconded the motion. He remarked that the adverse balance was not due to bad management or lack of members, but the society had so enlarged its sphere of work that the expenses had been proportionally increased. The resolution having been carried, the officers of the society for the ensuing year were elected. At the close of the business of the meeting the Rev. W. K. Suart gave a most interesting lecture on the external structure of the bee, illustrated by a series of cleverly-executed diagrams. Votes of thanks to the lecturer and chairman were passed. The ballot for three hives then took place, which hives were won by Mr. C. W. Bird, Kinwarton, Mr. W. Hill, Chilver's Coton, and Mr. T. Huxley, Erdington. Mr. Bower urged those present to do all in their power to get new subscribers, and condemned the

action of a few former members who had left the society after acquiring sufficient practical knowledge to start bee-keeping.

HAWKSHEAD AND DISTRICT BEE-KEEPERS' ASSOCIATION.

The general annual meeting of the members of the above was held in the Town Hall, Hawkshead, on Saturday evening, the 30th ult. Mr. James Postlethwaite was voted to the chair, and proposed, whilst Mr. Joseph Coward seconded, that Lieutenant-Colonel Sandys, M.P., be president for the ensuing year. It was proposed by Mr. Isaac Postlethwaite, and seconded by Mr. Rogerson, that Mr. William D. Heelis be Hon. Secretary, and Mr. Lister Hon. Treasurer. The following were elected members of the Committee:—Mr. Wrigley, Mr. Horrax, Mr. John Abbott, jun., Mr. George Rigg, Mr. James Postlethwaite, Mr. John Burrow, sen., Mr. Thomas Walker, Mr. Joseph Coward, Mr. James Rogerson, Mr. Isaac Postlethwaite, Mr. Cornelius Coward, Mr. James Leviston, Mr. J. N. Fell, Mr. W. A. Rushforth, Rev. W. P. Dawe, and Mr. William Carter. It was proposed by Mr. Isaac Postlethwaite, and seconded by Mr. George Rigg, that the Secretary convey to Mr. William Feilden Whittaker, who was obliged to sever his connexion with the Association in consequence of his leaving the neighbourhood to go abroad, the cordial thanks of the members for all that he had done in promoting the Association. The first committee meeting was fixed for the 11th June.

The Show will be at Ambleside this year.

IRISH BEE-KEEPERS' ASSOCIATION.

The Committee of the above Association held a meeting on the 3rd inst. Present, Mr. Read, in the chair; Dr. Knight, Dr. Allen, Dr. O'Farrell; Messrs. Gillies, Milner, Vanston, and the Hon. Secretary. Mr. O'Reilly of Sans Souci, Booterstown, was unanimously co-opted a member of the Committee. It was resolved to hold the Association's Show at the Salthill Gardens, near Dublin, on the 9th and 10th of August.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to "The Editor of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Upper St. Martin's Lane, London, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. Huckle, *King's Langley, Herts (see 2nd page of Advertisements).*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

'THE WINTER IS PAST.'

[961.] 'Time works its changes,' is a saying as trite as it is true. When last I wrote you Canada was wrapped in a mantle of snow; her lakes and rivers bound down, or bridged over, by ice twelve to eighteen inches thick. To-day the lakes are open. The whistle of the steamboat is once again heard in the harbours of her inland waters. Her rivers, untrammelled, roll seaward, swollen by innumerable streamlets which carry down in liquid form the crystallised covering that lay lightly upon the face of the country for months past. The feathered songsters (most of them migratory) are again carolling in her woods and orchards. Insect life has revived and is again on the wing. The familiar hum of the honey-bee falls upon the ear of the apiarist with a sweetness, if not a harmony, surpassing that of the Eolian harp. They have passed some five months of 'hibernation' (if you will) in happiness and contentment. Some, of course, have passed to the bourne from whence no bee returns. The mortality, however, has not been greater than might have been expected.

The autumn flowers of last year were barren of nectar. Little or no honey was stored after August, and bees, if not fed, were put into winter quarters with scant provision for carrying them through till spring flowers furnished a fresh supply. This is the only cause from which I hear of loss being sustained. Some of my own bees have perished from starvation. Not being at home last autumn their wants were not well attended to, and their mortality has been greater than is usual with me. About twelve per cent of those wintered in my bee-house are defunct. Of fourteen stocks wintered outside in my home apiary only six survive—another proof to me of the advantages of indoor wintering. The outside hives were quite as well supplied with stores when put away as were those in the bee-house, yet the proportion of loss by the latter method of wintering was six times as great as that in the former. The average consumption of stores when placed in the bee-house does not exceed eight pounds per hive during a confinement of five months, while it requires nearly three times that quantity to bring them through when kept on their summer stands.

I have had a marked proof of the advantages of ample unoccupied forage-ground during last season. The neighbourhood in which I live is slightly overstocked with bees. My increase at home was about seventy-five per cent by natural swarming. Last spring I moved twelve of my weaker stocks to my farm, some thirteen miles distant. There are no bees but my own in that neighbourhood. Those twelve increased to forty-two, and I took as much honey from them in proportion as I did from those at home. Forty out of those forty-two came through the winter in fine condition. They were kept on their summer stands, with precisely the same protection as the fourteen at home got—that is, they were prepared in the manner described by me in my last letter. I intend to profit by this experience, and have made provisions for moving a portion of those now at home into the country before swarming time. I shall thus have three yards to look after this summer.—R. McKnight, *Owen Sound, Ontario, April 30th.*

BEES AND RIPE FRUITS.

[962.] Mr. Webster asks if any bee-keeper has placed paper in his hive. Some years ago I fitted up four or five sections for a last effort late in the season. They were not in a crate, but tied together and placed on the top of one of Mr. Lee's old hives I think. But the point is that the end of one was secured with a piece of good stiff cardboard, made fast with gummed paper, and the bees ate a hole through. Paper they will make light of. During a very busy season I once left a swarm on the ground for three or four days with an old table-cloth under them. They gnawed away a hole as large as the top of a hat. That they feed on raspberries, I suppose, I must believe. My people who pick the fruit tell me so, not heeding my assurance that they would not have any to pick but for the bees, *et id genus omne:* but whether they make the first puncture is more than I can say, and I do not see that it is of much consequence. We rob them, don't we?—C. R. S.

BEES EATING FRUIT (936.)

[963.] I have been growing fruit and keeping bees for about forty years, but I have never known bees to eat ripe fruit. I have had much trouble to keep wasps from ripe grapes, peaches, &c., indoors. I have netted the

ventilators to keep the wasps out, but I found if I could exclude robins and tomtits the wasps could not penetrate the skin, consequently they could not damage the fruit. The bird alights on the top of the bunch of fruit, and pecks several small holes, after which Mr. Wasp can operate, and after the syrup has run from his work on the other part of the fruit he can penetrate it and go on bravely. I have no doubt there are numbers of your readers who have noticed pears and other fruit pecked in the manner described round the stalk, and that is the spot where Mr. Wasp starts operations.—JOHN MOORE.

HUMBLE-BEES.

[964.] The opening of cells containing new-laid eggs by worker humble-bees was well described by Huber in 1801. Mr. Darcy Grimshaw would, I think, read his account with very great interest but for two drawbacks, it is difficult to get at, being in Vol. VI. of the Linnean Society's *Transactions*, and it is in French. Whether anything has ever been written on this subject I do not know. Huber noticed this habit in nests of red and black humble-bees. The name of Mr. Darcy Grimshaw's bees, at any rate, I have little doubt is *Bombus lapidarius*. In two colonies of these same bees I have seen what Mr. Grimshaw describes, with this exception that the cells contained new-laid eggs and not young grubs. My observations do not go so far as Huber's, but so far as they go they agree with his. He found that the worker-bees try to open those cells only which contain new-laid eggs, that the mother has to defend them during the first day only; that the workers who endeavour to open the cells are fertile workers, who, if they get their own way, eat up the eggs, and themselves lay others in their place, and these produce drones only. Huber describes these fertile workers as quarrelling and eating up one another's eggs after he had removed their mother.

Do other kinds of humble-bees quarrel in this way? So far as I am aware scarcely anything is known of the habits of humble-bees.

The boxes I kept the bees in had for their sides a 1-lb. section, a fixed wooden bottom, and a moveable glass top. The chief difficulty in watching a colony is that if moved 300 yards, or even three miles, most of the bees will not leave their new position. The great John Hunter in springtime made places for the humble-bees well provided with moss and covered with moveable slabs. In these several queens built.—G. D. HAVILAND, *Warbleton, Hawkhurst*.

W.B.C. END.—THE APIFUGE.—SECTIONS.

[965.] May I advise 'X-Tractor' to give the W.B.C. end a trial before fitting up entirely with Abbott's broad-shouldered frames? The possibility of drawing the frames closer together, and so preventing honey storing 'below-stairs,' is a great advantage, and even if he does not approve of this, it is a handy and useful appliance, and inexpensive as well.

I have been trying the apifuge, and am delighted. The smell is by no means disagreeable, and I rubbed a little on my neck and face, and worked without a veil with perfect immunity. The stock which I handled first comes of an awful race, well known here as 'reg'lar devils, sir, beggin' your pardon,' and they certainly maintained their reputation last year. A gentleman who was looking on, and had somewhat boastfully declined the use of a veil, saying, 'I'm not a bit afraid, bees never sting me,' had ruefully to confess, with the Captain of the *Pinafore*, that they 'hardle ever' did a minute later, and bore evident marks of my bees demoniacal tendencies on his face for some days after.

I should like to suggest caution in accepting Mr. Radcliffe's conclusions. 'The principle *seems* an advance,' 'I *believe* the bees won't make so many pop-holes,' 'I *fancy* extra cost will repay,' are hardly the sort of testimony I like to see, and I should certainly require something more definite before discarding our old friend the V-cut sections. I am rather struck with the four bee-way sections, however, and am inclined to try a few by way of experiment.

Honey is being brought in in small quantities in this part of the world, and as the weather is just now glorious, and apple-blossom opening fast, I have ventured to super my strongest stock, having ten frames below ¼-inch apart, with the W.B.C. ends on.—TREVOR SAYNOR, *Plymstock, South Devon*.

THINGS IN GENERAL, BY WOODLEIGH.

[966.] Mr. Webster (937) first pities the county experts *re* the possibilities of their propagating foul-brood during their tours, then expresses a wish to meet the county expert who is not familiar with the pest, evidently implying that said expert is a *rara avis*, yet in his very next sentence he gives the thrust to the hilt into some poor nameless county expert whom he terms unqualified. In behalf of the unqualified county expert, may I ask Mr. Webster if the weather was such that enabled the said county expert to examine the said foul-broody hive, or was it so cold that the unqualified one took a mere cursory glance at the exterior of the hive, and because a few bees were visible at the entrance, or maybe disporting themselves in the fitful sunbeams, the county expert gave the welcome report of 'All's well?' Perhaps Mr. Webster will notify to the said county expert, whoever he may be, as to his gross mistake in his report and give him a chance of explaining.

Though I boast of no scroll of parchment endorsed by the great and leading lights of our 'art,' yet I yield the palm to none in the practical part of the business, even to the inclusion of a knowledge of foul-brood; fortunately for me my knowledge of the dreaded pestilence was not acquired in my own apiary: and if care and circumspection will prevent its introduction there, I intend giving it a wide berth.

Mr. Webster asks the pertinent question, Who were the examiners, if a second-class expert does not know foul-brood when he sees it? Mr. Webster must know that many a shallow pate gets through an examination by the aid of a good coach, and also what numskulls one meets with in every walk of life, who have all scrambled through some kind of examination and are in and hold their present position and emoluments by virtue of their parchments, and not because of either the quantity or quality of brains contained in their craniums.

I notice in our 'Report' that I am appointed District Secretary for my part of the county, and no doubt I am expected to give advice, and now, after giving advice gratis for some years past as free as water to all and every one who has asked for it, to know that my advice is empirical, that I am not duly and properly qualified,—in fact, that I am not a regular certified practitioner, but only a quack. Bee-keepers of my district and acquaintance, beware of W. Woodley.

I have grown a few plants of *Echinops Sphærocephalus*, the Chapman honey plant, for several years, and it certainly is a favourite flower with the bees; but I do not consider it so good as borage, as it only produces one cluster of blossoms, while borage grows and blooms for a month in succession.

I think the suggestion of the sowing of bee-flowers in waste places a good one and worthy of the support of Bee-keepers' Associations, at the same time I think we must endeavour to propagate kinds that will not prove a nuisance to our best friends the farmers.

Apifuge, like everything else in the world, has its

failures as well as its successes. A lady I know tried it, discarded her gloves, anointed her hands with the apifuge, went valiantly to work, and received six stings during manipulation of first hive, lost all faith, washed her hands, donned her gloves, and proceeded with examination of No. 2, wiser, if not with more comfortable feelings.

I can endorse friend Webster's assertion in 936, having seen in 1884 a large bed of strawberries in front of an apiary cleared nearly by the bees there. There is no doubt that bees are able to pierce the skin of the ripe strawberry. Wasps are very strong in the jaw, I have seen a prisoner wasp bite a horse-hair through at one grip like a pair of nippers.—WOODLEIGH.

SPARE COMBS.

[967.] I query whether it is at all necessary to have any spare old combs when working on your doubling and storifying system. Last year I piled up one of my hives on to forty-two frames of which only six or seven were old combs.

I find that a good queen lays in every cell of foundation as soon as it is worked out, except of course just at the corners, whilst with old combs *at first* she only lays a round patch in the centre. For extracting I *prefer* new combs if *not* laid in. Last year when extracting the top storey of ten frames spaced about $1\frac{3}{4}$ inches, I always found I got just *over* forty lbs. (averaging four lbs. a frame), the middle frames having about six lbs. in each; and though all new combs, the only breakage I had was the top bar of one frame. (I took 130 lbs. from this hive last year, all collected between June 24 and August 9.)—E. B. DOWNER, *Surrey*.

CONDEMNED BEES.

[968.] In the *Journal* of this date, I notice Mr. Oetzmann of Broadstairs says, 'I cannot say I have been uniformly successful in making stocks from condemned bees.' I am sorry to say this season I am bound to bear him testimony. I usually take a large quantity, but whether from too contracted a circle, and they wend their way home again, or whether last fall the bees were more worn out than usual, somehow or other I have fewer good lots. I always give them combs of honey to save additional labour and my several lots together. Maybe I am not as careful of the queens as I ought to be. I solicit correspondence hereon.—RECTOR, *Buckland Filleigh, N. Devon, May* 12.

LEE'S PATENT FRAMES.

[969.] Several inquiries from correspondents relative to the above, and as they are now in commerce, I would beg leave to advise those who are desirous of letting the foundation hang half through the bottom rail to use the wired, as I wish it to be distinctly understood that I do not guarantee the unwired not to bulge if such foundation is passed between the halves of bottom rails. Experiments are being carried out with unwired foundation in four apiaries, but owing to the backward season the tests have not yet been made. To prevent any misunderstanding, I would add that unwired foundation fixed within a $\frac{1}{4}''$ of the bottom bar is held securely, and from its peculiar grip, perfectly straight and without the faintest sign of buckling.

Although generally understood, it is a fact worth repeating, that in all cases hives should stand perfectly level at right angles to the frames; if this important feature is neglected more or less imperfectly built comb is the result.—JAMES LEE, 13 *Glycena Road, Lavender Hill, S.W.*

CARNIOLAN BEES.

[970.] 'Amateur Expert' has evidently put a false construction on my letter (p. 129), on Cyprian bees. If he will read again he will see there is but one sentence which applies, or at least which I intended to apply, to Carniolan bees, viz., that 'I had an idea they were dismissed years ago;' and I must say that I can scarcely divest myself of that idea still, seeing that these bees have been before the public so long, and it is only now lately that anyone seems to have recommended them—at least I have carefully read the *Journal* for some years, and this is the impression left on my mind. I suppose it was open to me as well as to every other reader to express an opinion without raising the ire of anyone else; but 'Amateur Expert' seems to me a little pugnacious, and withal, I fear a little inconsistent: he was down on to Mr. Grimshaw like a thousand of bricks about grinding his axe, &c., *re* Apifuge, but though he sees others grinding away weekly he says nothing.

I have not tried Carniolans myself, though at one time I was strongly impressed with a desire to do so, but as my inquiries gave me such poor encouragement, except as regards swarms, I gave up the idea. A friend of mine, well experienced in bee-keeping, equal in fact to an 'Expert,' has tried them side by side with his natives, with the result that he got plenty of bees, but not an ounce of honey. Will 'Amateur Expert' please state the heaviest weights of honey taken from two or three of his best hives of Carniolans last year? I consider the concluding sneer he gives me anything but well-timed and in no way warranted by anything I have said in regard to him.—F. BOYES.

THE NEW RACES, &c.

[971.] Mr. Simmins is quite right; I refuse to admit that brown is black. It does not matter to me who agrees or who differs with me; it is a question of principle, not of persons. But I must ask Mr. S. not to class me with 'those persons whom he has known, and who have endeavoured to draw a line between what they were pleased to call black and brown bees.' I have not tried to make any such distinction; in fact, I was quite unaware that there were two varieties of our native bees, therefore his allusion to 'a little common sense' (a commodity of which I fear we are all more or less deficient) has no application in my case.

Now what did I write against foreign bees at all for? Certainly not with the remotest idea of doing harm to anyone, but solely from a desire to prevent the extermination of our British bees. For many years I have paid a good deal of attention to natural history, and, knowing the baneful effects which have followed the indiscriminate introduction of alien species into new countries, I looked upon it not only as the right, but the duty, of every bee-keeper to caution the inexperienced in these matters. Could those who introduce these bees into new districts keep them to themselves it would be different; they might keep scorpions if they liked, so that they did not let them loose to do others harm, but I think a great responsibility attaches to them when it is borne in mind that the purity of all their neighbours' bees is destroyed, which some probably have spent considerable time and trouble in selecting, as far as they were able, for their good qualities. I am sure I should not feel comfortable if I thought I had been the means of turning all the cottagers' bees in these parts from gentleness into demons, for be it remembered that many of these poor people keep their bees close to their own doors, and have children daily playing near them.—F. BOYES.

AN EXPERT'S SPRING TOUR.

[972.] I have just been making my spring tour among the members of our Association, and I am happy to say

that with very few exceptions I found the bees in excellent condition; notwithstanding the long winter and the adverse weather the stocks, as a rule, are strong and in a forward condition. I met with the first natural swarms of this season on Tuesday, the 10th inst., at Peopleton near Pershore. Of course I took off my hat and paid my dutiful respects to the queens who had sent off, so far as I knew, the *first* swarms in this year of jubilee. And fine swarms they were too, completely filling the skeps in which they were placed.

I have not met with the slightest trace of foul brood in any part of the county; but, of course, I must speak on this subject with *bated breath*, for has it not been asserted in the *Journal* that all experts do not know it when they see it, and possibly I may be *one of them*, and yet I flatter myself by thinking I know a little about it? Have I not seen it? Have I not smelt it? Have I not suffered from it? and have I not subdued it more than once? I testify what I do know that in no apiary that I have visited this season have I found *foul brood*.

I cannot, however, positively assert that our county is entirely free from this pest, because there are many bee-keepers who do not belong to our Association, whilst there are a few members whom I have not yet visited, but up to the present we can show a clean sheet, which I think is cause for gratitude. In one or two instances I have found the bees hard at work in the sections storing honey, gathered from the fruit-blossom which abounds in some parts of this county.

On another occasion I may have something to say on the subject of honey, as I find from certain 'opinions' of professed judges that they do not know everything, and consequently are not always right in the opinions they express.—E. Davenport, *Expert to Worcestershire B.K.A.*

Bees no Respecters of Persons.—The Viceroy of India (Lord Dufferin) and his staff had a singular experience at Debra Doon recently. His Excellency and suite attended service at the church—or, to put it more correctly, went to church for the purpose of attending service—and soon after entering the sacred edifice were alarmed at hearing a great commotion outside. The disturbance arose, it proved on inquiry, from the fact that a swarm of bees had attacked members of the Viceroy's bodyguard and others outside the sacred edifice. The Viceroy and his party had, fortunately, got into the church, and the doors were closed. The bodyguard escort outside fled. A horse belonging to an officer of the Goorkhas was so badly stung that it lay down, and the bees would not leave the poor animal till they lighted a fire round it and drove them away. Ladies and children shrieking, horses plunging and bolting—the confusion was immense. The bees chased the church-goers for a quarter of a mile down the main road. A Correspondent hears, but cannot vouch for the fact, that the Viceroy himself on leaving the church, did get one sting in the back of his neck. I saw the party retreating in a closed carriage, not attended by their bodyguard. When the harvest moon arose, shedding her mild beams over the walls of the Debra church, one window was still in the occupation of the enemy who had inflicted so serious a defeat on the Supreme Government itself.—*Daily Paper.*

Stung by Bees.—We see, in the Annual Report of the London Guarantee and Accident Company for 1886, that a banker, 'stung by bees,' received as a solatium 6*l.*; an auctioneer, who was stung by an insect, had the same amount awarded to him.

Birds and Bees.—From my own experience I think Mr. Hiam is right. Give the birds a few crumbs and they will not touch the bees. I have 'swarms' of birds; my one hive is surrounded with nests, but not a bird has touched the bees. They do not seem to look at them. The bees are well and happy in the midst of swarms of birds of all sorts. I fear Mr. Ovenden's London sparrows are starved.—H. Robertson, *Parkwood, Torquay, May 10th.*

Query.

[973.] *Arsenical Fumes.*—A few bee-keepers in this district are much exercised about their bees, owing to the erection of buildings for arsenical purposes. It is rumoured that in the process of burning the fumes escape and cover the surrounding neighbourhood. The bees, attracted by the sweets, repair to the spot and suck it in and become poisoned. Could any of your correspondents give any information on this matter, and what would be the radius that such an operation would be effective to the destruction of bee life?—John Brown, *Lewanwick, Launceston.*

NOTICES TO CORRESPONDENTS & INQUIRERS.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

Novice.—*Weak Stocks.*—1. Unite the weak stocks and feed. Buy *swarms*. You would find difficulty in purchasing established colonies at this late period. 2. Yes; a 3-lb. swarm, if possessed of a young and vigorous queen, may be built up, say from the early part of June, into a sufficiently strong colony to give a good account of the heather harvest.

M. T. W.—*Brood, Strength of Stocks.*—1. Drone brood is often mixed with worker. There is evidently an intention to swarm, and probably the queen is aged and will be superseded at swarming time, or soon afterwards. 2. Four standard frames full of brood betoken a fair-sized colony, which will increase rapidly and become populous by the time of the chief honey flow.

E. S. A. G.—*Spiders.*—There is nothing unusual in a spider killing a bee, for when it gets into the web it is powerless. Spiders are reckoned amongst the enemies of bees and are mentioned as such in bee books. Old sacks over skeps frequently harbour spiders, should be constantly examined, and the spiders destroyed.

W. Mitchell.—*Foundation.*—There is much time saved by giving full sheets of foundation, and we prefer them to strips. We have never found bees object to wired foundation. If they do not take readily to the foundation you have, try the ordinary foundation and wire your frames yourself.

R. L. Richardson.—*Unfinished Sections.*—If you give the bees the unfinished sections they will complete them. We should cut off the cappings about ¼-inch down, the cells will then be drawn out and completed. They will contain different sorts of honey, and if you do not wish this, cut the combs down to midrib; or it would be better still if you reserved those containing heather honey to be completed with the same at the moors.

Amateur Bee-keeper.—*Removing Bees.*—You must take your bees at least two miles in an opposite direction to the clover fields, and after a few days you can move them to the clover. As you are only one mile away, if you moved them at once many bees would return to their original place and would be lost. Were they ours we should not move them at all as they would find out the clover if the weather was fine, even from their present position.

O. W.—*Bell Glass on Bar-frame Hive.*—It would be a much better plan to use an adapting board with a hole almost as large as the bottom of bell glass, this hole to be covered with excluder-zinc as the queen is much more likely to pass up into bell glass, on account of the size of this hole, than into sections.

F. Lester.—*Introducing Queen to two Weak Stocks.*—By all means unite the two stocks, and when they have settled down, say in three days, remove the queen and introduce the Carniolan.

G. G.—Your bees are British bees.

F. W. C.—The comb forwarded contained chilled brood, not foul.

G. LINDSEY.—The comb is not affected with foul brood; it is a case of chilled brood. Spray the combs with salicylic acid solution, or place a piece of camphor in the hive.

E. GIBBINS, *Neath.*—1. *Carbolic Fumigation.*—We never experienced such a proceeding on part of the bees, as they always commence gorging, presuming there is uncapped honey in the hive; place a few drops of common liq. ammoniæ on sponge. 2. *Foundation Fixed with Woiblet Spur Embedder.*—There is no necessity for inserting the foundation in saw-cut, neither is there for melting wax; the wires hold the foundation firmly.

CYMRO BACH.—1. *Queenless Hive.*—If your hive had been queenless *all* the summer, they would have entirely dwindled away long before August. The absence of queen renders the bees more suitable. 2. *Capped Brood.*—This may be known by the cappings, which are convex and have a dull appearance against honey cells, which are coneave, and have a shiny appearance in consequence of their cells being capped with wax, whilst brood-cells are capped with pollen and wax mixed. The brood-cells are situated in centre of comb, the honey-cells partially surrounding on top and sides. 3. *Driving partially-filled Skep.*—This is always difficult, as regards the time occupied in so doing; they should be 'bumped.' This plan is much easier than driving in nearly all cases. 4. *Irritability of Bees.*—This varies very much, according to the weather; on warm, sunny days they are gentle, on cold, rainy ones the reverse. 5. *Doubling.*—This should be done with two strong colonies about a week before white clover blooms, if this is your chief supply. To perform this, remove the brood combs—after shaking all the bees off, back into their hive—from one hive and place them on top of the hive to be supered; the bees hatching out make a very strong colony; as the cells are thus emptied they are refilled with honey, which will then be coming in plentifully. 6. *Two Weak Skeps.*—Unite the two skeps by placing one on top of the other with a piece of excluder-zinc between; allow only one entrance, that of the bottom hive, and remove queen from upper one; to make matters more certain, scent both lots with thin syrup, in which a few drops of essence of peppermint has been put.

F. D. S.—*Wax-moth.*—The 'long grubs' you describe are the larvæ of the wax-moth. They must be destroyed, either by crushing them, or, if they are wriggling their way through the comb, by pricking them out with a penknife.

RECEIVED from Messrs. Edey & Son, St. Neots, Hunts, their Illustrated and Descriptive Catalogue of Hives and Bee Furniture, 48 pp. Also their Catalogue of Poultry and Game Appliances, Greenhouses, &c., 16 pp.

RECEIVED frem Mr. H. Chenevix, Hon. Secretary of the Irish Bee-keepers' Association, schedule of prizes of exhibition to be held at Salthill Gardens, near Dublin, on August 9th and 10th.

RECEIVED from Mr. Paul M'Henry, Hon. Secretary of the North-east of Ireland Bee-keepers' Association, the Annual Report. This Report contains 'Useful Hints to Bee-keepers,' extracted chiefly from the pages of the *British Bee Journal*; 'How can we further the Objects of the Association?' 'Invertible Hives,' 'Hints on Spring Management,' 'Directions for Packing Honey,' 'Facts for Beginners,' &c. These papers are well written, and will prove of great service to the members of the Association.

RECEIVED from Messrs. Abbott their Price List of hives, &c., as sold at their depôt at Paris.

Show Announcements.

Giving Name and Address of Secretary, Date and Place of Show, Date of Closing Entries. Terms: Three Insertions and under, Two Shillings and Sixpence; additional insertions, Sixpence each. No charge made to those Associations whose Shows are announced in our general Advertising Columns.

June 15, 16.—Wilts Agricultural Show. Rev. W. E. Burkitt, Secretary.

June 23, 21.—Suffolk Agricultural Show at Bury St. Edmunds. Entries close June 6. J. Huckle, Secretary.

July 11–15.—Royal Agricultural Show at Newcastle-on-Tyne. Post entries to June 1st. J. Huckle, Kings Langley.

July 20-22.—Lincolnshire Agricultural Society at Spalding. Entries close July 4. R. R. Godfrey, *Secretary.*

July 26–28.—Gloucestershire Agricultural Show at Cheltenham. Entries close July 12. W. D. Slade, Secretary.

July 26, 27.—Warwick Agricultural Society at Suttou Coldfield. J. N. Bower, Secretary.

July 27.—Bishops Waltham Show. (Hants and Isle of Wight Association.) H. W. West, Hon. Sec., Swanmore House, Bishops Waltham.

August 3–5.—Yorkshire Agricultural Society at York. Secretary, H. L. Rickards, Poole, near Leeds.

Business Directory.

The Name and Address and Business of any Manufacturer will be inserted in this List, under one heading, for One Pound per annum. Additional headings, Five Shillings extra. Advertisers in 'THE BEE JOURNAL,' whose orders amount to Five Pounds per annum, will be inserted Free.

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APPLETON, H. M., 256A Hotwell Road, Bristol.
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BLOW, T. B., Welwyn, Herts.
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BURTT, E. J., Stroud Road, Gloucester.
EDEY & SON, St. Neots.
HOWARD, J. H., Holme, Peterborough.
HUTCHINGS, A. F., St. Mary Cray, Kent.
MEADHAM, M., Huntington, Hereford.
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SIMMINS, S., Rottingdean, near Brighton.

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THE
BRITISH BEE JOURNAL

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Editorial, Notices, &c.

PROPOSED SHOW DURING THE YEAR OF JUBILEE.

It will be seen, on reference to our report of the proceedings of the last meeting of the British Bee-keepers' Association, that the subject of holding, in London, an exhibition of bees, honey, and appliances, during the present year of Jubilee, was fully discussed; and the Committee, believing that great and lasting advantages would accrue to the cause of bee-keeping from holding such an exhibition, were unanimous in their opinion of its desirability. But it would appear that the Association, having already made the necessary arrangements for holding several shows during this year (and the carrying out these arrangements will absorb the whole of their available income), are not in a position to take upon themselves the responsibility of such an undertaking without the general and generous aid of the bee-keeping public. To carry out an exhibition on the same scale, and with the hope of the same degree of success, as the South Kensington, it is estimated that about 200*l.* would be required. The Committee are therefore naturally desirous of ascertaining the views and the wishes of bee-keepers on this subject before proceeding to action.

Last year when the proposal was put forward to hold the exhibition at South Kensington, the Committee threw themselves with confidence on the generosity of bee-keepers. This confidence was not misplaced. The proposal was favourably and eagerly entertained; and with all promptitude a fund was opened to receive donations and subscriptions towards a guarantee fund for covering all possible charges. The result was that, through the willing assistance of the affiliated Associations and the liberality of individual bee-keepers, the Committee were encouraged to make the necessary arrangements for the exhibition; and it is with peculiar feelings of satisfaction that they are enabled to look back on the success with which their labours on that occasion were crowned.

It would be impossible, at present, to say whether the amount estimated by the Committee would be required, but we may safely say that, as probably there will be but little in the way of receipts from any source to help in reducing the expenditure, the larger portion of the expense must be met by special subscriptions; and if the Committee can have the assurance that such help will be forthcoming, they will gladly put forth all their energy, and utilise all their experience, that the exhibition may prove to be of lasting benefit to the British honey producer.

Much of the success of the proposed exhibition would depend on the locality where it would be held. Last year bee-keepers were especially fortunate in having such a location as the great Conservatory at South Kensington placed at their disposal. Two localities have been mentioned as suitable, viz., the Horticultural Gardens at South Kensington, and the American Exhibition. We are of opinion that bee-keepers would prefer the latter, not only because that exhibition is the great attraction of the season to the sight-seeing public, but also, perhaps, there might be, if suggested, a friendly competition between British and American products and appliances. Such a friendly rivalry would give a character and a point to the assemblage of bee-keepers, and would be perfectly in harmony with the objects of the American Exhibition. And from what we have incidentally heard, we have reason to believe that the conductors of that exhibition would not be disinclined to think favourably of the proposal.

The matter, then, rests with the bee-keepers of the United Kingdom. The success of the exhibition, on the broad principles of that of South Kensington, depends on the support which may be given to it by the affiliated Associations; by the manufacturers of bee-keeping appliances, who will chiefly be benefited by the exhibition; and by the amount of donations and subscriptions to the Guarantee Fund from bee-keepers generally.

The great object of the Exhibition will be to demonstrate to the world that Great Britain is a honey-producing country; that it is able, without foreign aid, to supply the demand of honey for this country; that British honey is equal, if not superior, to that produced in any other countries; and that in bee appliances and manufactures we are not inferior in these to any other nation.

It would at present be beside the mark to speak of the features of the Exhibition; these would be developed in proportion to the favour entertained of it by the public: but we may safely say that

all the experience of the past would be brought to bear on it by the conductors so that it may be made as perfect as possible. At the South Kensington Show the Committee had every reason to be satisfied with the assistance rendered them by the affiliated Associations and bee-keepers generally. If the same assistance be forthcoming on this occasion, we feel assured that the result would eventuate in a success which would be gratifying to all concerned; and we trust that the conduct of all may be characterised with unanimity, earnestness, and zeal. We shall be pleased to be the medium of any communications and to do all in our power to promote the effective carrying out of the wishes of the bee-keeping world.*

A REQUEST.

We notice in the communication of our correspondent 'Amateur Expert' a request that English bee-keepers should forward any spare books on bee-keeping they may have to Mr. Couse, of Ontario, Canada, to help the formation of a library in connexion with the Ontario Bee-keepers' Association. The compliance with this request will in a slight degree show 'the deepening sense of brotherhood which makes all nations one,' and also will enable us to repay a debt which has been long due for the gift of one of the best works on apiculture by an American author to the library of the British Bee-keepers' Association. In June 1880 the B.B.K.A. received a book, accompanied by a letter from Mr. J. Y. Detwiler, of Toledo, Ohio, saying that having read over the list of books in the library of the B.B.K.A., and having noticed the absence therefrom of Quinby's *New Bee-keeping*, he had forwarded it, 'trusting that those who may enjoy its perusal will find it, as I have done, a most valuable auxiliary to successful bee-keeping.' We hope that British bee-keepers will follow the example set by Mr. Detwiler, and avail themselves of the opportunity now presented of assisting our friends in Canada.

BRITISH BEE-KEEPERS' ASSOCIATION.

The Northern Lecturing Tour.

The lecturing tour through Durham, Cumberland, and Northumberland, arranged by the British Bee-keepers' Association, will be conducted by Mr. W. B. Webster, who, on his journey to the north, will also give two lectures in Lancashire by desire of the Lancashire and Cheshire B. K. A. Starting on the morn of the 20th, the first lecture will be delivered at Lancaster, another in the same county on the 21st; Morpeth, on 24th; Felton, 25th; Alnwick, 26th; Belford, 27th; Paxton, 28th; Rothbury, 30th; Hexham, 31st; Haltwhistle, 1st June; and others on the journey home.

USEFUL HINTS.

Weather and Bloom.—We are still in the midst of gales and storms on this 20th day of May. No chance for a bee to leave its hive, while fruit trees are laden with bloom, and all colonies are taking syrup freely to keep the masses of brood from starving. Only yesterday we saw a fine colony, having abundance of brood, perish from want of food. An occasional fine day, on which bees could work with a will, has been the exception and not the rule. The hawthorn bloom is beginning to show itself, broom, furze, apples, pears, and other fruits, show a mass of bloom, but unless we get a speedy change of weather all will be lost to the bees. Our beds of *Aubrietia purpurea* have formed perfect sheets of bloom for weeks, and have been covered with bees whenever the weather permitted. *Limnanthes Douglasii* forms the edging to our kitchen garden borders, sowing itself annually and is breaking into bloom. All this is very tantalising, but we must 'hope on, hope ever.'

Swarms.—We hear of no natural swarms at present, but if a burst of fine weather comes, no doubt they will be numerous enough, and a careful watch should be kept. Towards the close of the fruit-tree bloom swarms generally issue about the end of May. Before the white clover blooms there is a scarcity of forage, and such swarms must be liberally fed or starvation may prove fatal. Unless carefully tended, swarms issuing in the early part of June will undoubtedly surpass them, these latter being larger, enjoying warmer weather, and a greater choice of forage.

When swarms are desired from skeps well populated, if no inclination to natural swarming appears, such may be driven, and the driving affords a good opportunity of introducing a queen of another race. The whole of the bees should be driven out, and the queen secured. They should then be divided into two portions, one containing twice as many bees as the other. To the larger lot, which forms the swarm, the queen is returned, and they are placed upon whole sheets of foundation, in a frame-hive, and located on the old stand. The smaller lot is returned to the parent skep,—which is to occupy a new position,—and the new queen is dropped into their midst as they run in. This method of introduction rarely fails, and the combs and bees may be transferred, at any time desired, to a frame-hive. From sundry indications it is likely that the present may prove a swarming season, especially if a 'burst' of hot weather succeeds to the cold, rain, sleet, and snow, now experienced. In such case it will be advisable not to attempt returning swarms, but, while gratifying the swarming instinct, to obtain through it honey in its various forms, or honey and increase together, on the systems suggested in former 'Hints.' In the hands of an amateur we are convinced that this is the most lucrative and the safest plan, if not in those of an expert. In all cases we advise placing the swarm upon the stand of the parent colony—which effectually prevents absconding—confining it to the number of frames which it is able to cover, and supering at once.

Putting on Supers.—Although many will have placed supers on the hives before this is in print, still a few general directions may prove acceptable to others. A hive should be full of bees, and honey coming in, before the attempt is made. If the outer combs are already sealed, uncap them and place them in the centre of the brood-nest, and put on the super. The bees will relieve these combs of their honey, carry it to the super, and the queen will soon fill these emptied combs with brood. Supers must be warmly covered with woollen material, and should not be disturbed until three-parts filled, when empty ones may be placed beneath, if occasion require it. As supers approach completion signs of swarming will probably be manifested, when ventilation must be given below by wedging up the hive from the floor-board, or by placing an eke under it.

Removing Sections.—Many recommend filled sections to be removed one by one, as completed, others

* Subscriptions should be forwarded to Mr. J. Huckle, Kings Langley, Herts.

allow the whole number contained in the rack to remain on the hive until all are finished. By the latter plan the sections are worked more evenly, and there is no loss of honey if a judicious system of tiering up is practised. Before placing section cases on the hives the practice of some is to crowd the bees on a less number of frames than the usual ten by withdrawing the two outside ones, thus forcing the bees into the supers.

Enlarging Brood-nest.—Our own plan is, with full colonies, to allow ten Standard frames at least, unsealing the outside ones and placing them in the centre, as advised above, or, if honey is coming in abundantly, to remove the outside frames and to place a couple of full sheets of foundation in the midst of the brood-nest. By a prolific queen such sheets will be filled with eggs long before the cells are drawn out, and in an incredibly short space of time. The objection, which prevailed some weeks ago, to dividing the brood does not hold now, since the great heat pervading the interior of the hive prevents chilling the brood. Indeed, after the departure of a swarm, the parent hive is almost deprived of working bees, yet no ill effects follow.

Doubling.—We can give no better advice, as regards doubling, to those who prefer working for extracted honey, than to refer them to Mr. Cowan's *Bee-keepers' Guide Book*, pp. 54-6; and to his *Guide Book Pamphlet* No. 1, on Doubling and Storifying. The latter contains many useful hints for the prevention of swarming, amongst them, when working for comb-honey and extracted, to place a hive containing empty combs or foundation beneath the brood-chamber, with section racks above. We advise all to procure this useful pamphlet, which is published at the nominal price of threepence.

Purchasing Swarms.—There is no better plan of commencing bee-keeping than by purchasing from a neighbour a good natural swarm about this time, or not later than the second week in June. Such a swarm should weigh at least 4 lbs., should be hived in a stout roomy skep, and conveyed at night to the premises of the purchaser, and transferred to a modern frame-hive well primed with full sheets of foundation. From such a swarm in a good season, a rack of sections, more than sufficient to pay its cost and that of the hive during the first year may be obtained. For the first week the swarm should be fed with about a pint of syrup every evening, and, during fine weather, the combs will be fully built out in ten or twelve days, when a super may be placed upon it. A south-east aspect, sheltered from the cold winds and open to the south, should be selected, and during bright and hot weather shade must be afforded to prevent the falling of the newly-built combs, which are fragile to a degree, and will bear no handling, except with the greatest care. An entrance stretching across the whole width of the front of the hive is desirable, and, in case of the bees clustering outside the hive, it must be slightly raised at the back to cause a current of air to pass beneath the combs. These are A B C instructions, but our readers will bear in mind that they are addressed to beginners only.

Bees and Grapes.—Under this heading Mr. Doolittle gives in the *American Bee Journal* of the 4th inst. the results of his observations, spread over a course of years, with a view to ascertaining the truth or falsehood of the charges brought against our bees of destroying grapes. Speaking of various kinds of thin-skinned grapes, subject to bursting during a damp night or moist, warm weather, he relates that he 'found scores of these at such times newly cracked around and near the stem' upon which he knew that no bees had been at work the day before, his examination having been made early in the morning before the bees were out, and when he found these cracked grapes afterwards covered by the bees, he knew that they were merely sucking the juice from the fruit, so that instead of being the cause, they come in merely as an effect. Again, on examining the tougher-skinned varieties, he discovered a triangular piece of skin, about $\frac{3}{32}$ of an inch, on each side torn out of the sides of hundreds of perfectly sound grapes. Through these holes the bees were sucking the sweet juices of these sweet grapes. Carefully watching the grapes early in the morning to discover if any appeared freshly cut, as if done in the night, none were so found; he felt convinced that the bees really tore open the grapes, but, after long watching, he failed to see a single attempt at aught save sucking the juice through the holes already made, and soon became convinced that the bees were not the cause of rending the skins. These examinations were all made before noon, but it appears that the real culprit was a lazy wasp, which did not commence operations early, for on continuing his watch in the afternoon Mr. Doolittle had ocular demonstration of the actual commission of the depredations, and witnessed numbers of the triangular rents made by a species of wasp which seems plentiful in those parts. He further states that the wasps, followed by his bees, together with the cracking of the grapes, resulted in the loss of half of his grape crop. This result exactly tallies with our own experience, which we gave some ten years ago in the columns of the *Times*, where a lengthy discussion on the subject took place, in which the late Mr. Hunter, Mr. Carr, and Mr. Shirley Hibbert, a very keen observer in all matters relative to horticulture, gave very decided proof to the same effect. In years when wasps have been numerous, often have we watched them pierce the skins of grapes, peaches, nectarines, and other fruits, closely followed by the bees, who take advantage of the punctures made ready for their use, but never have we witnessed a single bee pierce the skin of any fruit except that of an over-ripe raspberry.

DECEASE OF MR. JOHN BOLTON, OF GRANTHAM.

With deep regret we have to chronicle the decease of the above-named much-respected gentleman, which took place at his residence, Grantham, on Friday last, the 20th inst., very suddenly. Mr. Godfrey writes us that he spent Thursday evening with him to chat over arrangements for the forthcoming Spalding show, when he appeared in his usual robust health except a slight lameness in one foot for which he was having treatment. An appointment was made for the following morning to examine his bees, but the weather turned out too unfavourable for the work.

On Friday evening his housekeeper took in his bedroom candle about nine o'clock, and as he required nothing more, retired, leaving him taking a book from his shelves. A short time after a lumbering noise was heard, and, this not being unusual, no notice was taken of it; his housekeeper on going in to prepare his room on Saturday morning, found him upon the floor dead, and, looking into his bedroom, saw he had not been in bed. His doctor, after examination, stated he had been dead some hours, and that his death was instantaneous. The conclusion come to is, that death took place at the time the noise was heard the previous evening.

Apart from the well-known interest Mr. Bolton took in horticulture, and his large circle of friends in that branch, we would here speak of him as having been one much interested in apiculture. His sudden removal has left a blank, more especially in Lincolnshire, where he had long and earnestly worked in our cause. Those of our friends who have been accustomed to visit the Lincolnshire shows and honey fairs,—not one of which Mr. Bolton failed to attend,—can bear testimony to the happy welcome he gave them year after year, and his constant desire to assist them; but the loss of his able

assistance at his usual post,—the most laborious of all at our shows, 'staging,'—will be most felt by Mr. Godfrey, who knew, perhaps, more than any one his valuable help.

Mr. Bolton was born on the 22nd of April, 1824, at Amerside-lau, in the county of Northumberland, and was one of a family of nine. Early in life he took to gardening as his favourite pursuit, which he continued with much success. He was engaged at Patter-dale House, afterwards at Dalkeith Castle (Duke of Buccleugh), from whence he came to Belton House (Earl Brownlow), where he remained to the time of his retirement, some few years since, having been for many years head gardener there. On his retiring the noble Earl, in recognition of his valued services, granted him a handsome pension for life. He was unmarried.

Deceased was interred in the Grantham Cemetery on Monday, his funeral being attended by four of his brothers and many friends.

JOTTINGS BY AMATEUR EXPERT.

'Mel sapit omnia.'

Well, sir! my banner still flaunts. Thanks to my classical friend 'T. P. Atticus' we (?) have fought the battle bravely and well. I say *we* advisedly, just as all the snobs and tailors boast on the arrival of the news of a bravely-fought battle by our unique little army how bravely *we*—meaning the army and themselves—have beat them. 'Atticus' has done the fighting, and I do the shouting. If my shouting comes full late, my indulgent readers would bear with it I am sure if they knew the cause; let me say it was not because I had not recovered from the recoil of the 'first fierce shock.'

I feel very keen on your 'Jubilee' project, and am sorry no one has responded to the call you have made. Our fraternization with our Canadian brethren last year was so good that I vote loudly for going in for a turn with our cousins from the States; nothing but good can come of it. Moreover, they are desirous of drawing closer in the bonds of friendship with British bee-keepers; one post last week brought me five requests from them to open correspondence on apiculture with them—'they wanted to know more about us.' Here is some amusement I shall be glad to put any one on to that has the time and the *will*, the prospects of the usual remuneration are abundant, as Saxon blood flows as strong over yonder as it does with us.

The Ontario B. K. A. are forming a library, so here is a chance of British bee-keepers giving practical expression to their love for our 'brothers' in Canada. If you have an odd volume on bee-keeping they will be thankful for it. If you will send it on to myself, care of the Editor, I will be happy to forward it, or you can send it direct to the Secretary of the O. B. K. A., Mr. W. Couse, Meadow Vale, Ontario, Canada. 'Don't you forget it.'

Mr. Grimshaw is a happy man, he is among the 'palm-bearers' and recipients of 'honours and rewards.' Although I have hit Mr. Grimshaw on another issue, I have carefully refrained from appearing to detract from the efficacy of his discovery, for the simple reason that it has not been before us sufficiently long to get a fair test. I have not had a sting yet this year; I can frequently go well into the month of June without getting one. Take a few good supers off and get a cool spell and then go and test the 'Apifuge,' and you will have a better idea as to its efficacy; or, better still, wait till the month of September, and then, if I remember it, I will be happy to give my verdict and my 'palm.' Meanwhile use it fairly.

Amongst all your correspondents that have been hybernating, but have awoke with the bees and are now with them 'in full flight,' I welcome our humorous friend the Devonshire 'Rector.' My thanks are due to him not only for his bits of genuine humour, but for his calling attention to *Arcady*.

Another Rector's (959) positiveness as to the age of his bees is good reading. I will not attempt to refute his assertions, but give him another fact to put with his own. I have a queen-bee that is 'black' enough to suit any one short of Mr. F. Boyes, but about one-half of her progeny are as yellow-banded as many Ligurians. I have no 'yellow-jackets' in my apiary, nor have I had near me for the past three years. I can only account for it as what poultry and dog-fanciers term a 'throw back.' The remainder are brown or black or both, which you please to call them.

Mr. E. J. Gibbins stands greatly in fear of getting foul brood into his district and apiary. I can understand his almost extra precautions in face of that fear. May I tell him for his comfort (?) that it has raged around me for the past five years and yet I have escaped? How long I shall continue to do so I should not care to conjecture, but my immunity I attribute to cleanliness. I am always careful to give clean hives, &c., every spring, never to leave a lot of putrid, mouldy combs about; and although I have had condemned bees from very suspicious districts, yet I have always escaped hitherto. I think food has much to do with it also. If I fed my bees on cheap beetroot sugar, as recommended recently by 'Student,' I should soon expect to get foul brood and consider if I escaped I did not get my deserts.

I have read all Mr. F. Boyes' communications again. I give him up. All I have to say is Carniolans are *the* bees for timid bee-keepers, and they are Legion; and the yellow bees are only suitable for specialists whose potentiality of pain is lower than it is with—AMATEUR EXPERT.

ASSOCIATIONS.

BRITISH BEE-KEEPERS' ASSOCIATION.

The usual monthly meeting of the Committee was held at 105 Jermyn Street on Wednesday, May 18th. Present—T. W. Cowan (in the chair), the Hon. and Rev. H. Bligh, Rev. Dr. Bartrum, Captain Bush, Captain Campbell, Rev. F. S. Sclater, Dr. Walker, H. Jonas, J. M. Hooker, and the Secretary. Letters were read from the Rev. F. G. Jenyns, Rev. J. L. Seager, and the Treasurer, regretting their inability to be present. The minutes of the last meeting were read and confirmed.

The Report of the Finance Committee was considered, and various payments recommended were ordered to be made. Special attention was called to the fact that there was still a number of subscriptions outstanding.

The Secretary reported the receipt of the reports and balance-sheets of the several Associations for the past year. The Secretary was instructed to write to the Lincolnshire Association, expressing the regret of the Committee that their Association should have ceased to be in affiliation, owing to their non-compliance with the rules.

The Exhibition Committee, having further considered the rules for the management of County Shows, as referred to them by the quarterly meeting of County Representatives, presented their report. The rules, as amended, were ordered to be printed, and the Secretary was requested to forward a copy to each County Secretary.

The subject of holding an Exhibition in London during the present season was fully discussed. The Committee were unanimously of opinion that such an exhibition would be conducive of much good to the bee-keeping cause; but as the Association's work, as arranged for the year, would absorb the whole of its income, it would be necessary to have a special fund for the purpose of such an exhibition. Fully 200*l.* would be required to carry it out successfully. The Chairman

was requested to bring the matter before the bee-keepers of the United Kingdom, and others likely to be interested, through the columns of the *Bee Journal*.

HANTS AND ISLE OF WIGHT BEE-KEEPERS' ASSOCIATION.

The annual general meeting of this Association was held upon Saturday, May 14th, at the rooms of the Society for Promoting Christian Knowledge in Southampton. Amongst those present were the Rev. W. E. Medlicott (chairman), Rev. J. L. Carrick, Messrs. C. Martin, J. J. Candey, A. Broom, T. Giles, H. West, E. Maberly; and Mr. and Mrs. Bellairs, who arrived that day from the Continent. The annual report and accounts were adopted with a special vote of thanks to Mr. Stokes, the manager of the Wilts and Dorset Bank, Christchurch, for acting as auditor. All the officers were re-elected with the addition of the name of the Rev. J. L. Carrick upon the Committee, and Mr. Evan Maberly as Assistant County Secretary.

The accounts show a 'turn-over' of 377*l.* 2*s.* 6*d.*, but there is a debt amounting to 43*l.* 1*s.* 10*d.* owing to the Treasurer. Nearly 100*l.* has been distributed in prizes, and a considerable sum has been expended in local shows, experts' tours, &c. The Report deals with these at length, and alludes with legitimate pride to the special visit of the President, H.R.H. Princess Beatrice and her husband, to Southampton, to do honour to the Association. It also states that preparations are being made to arrange a joint show with the Berks B. K. A. at Reading, upon the occasion of the intended Show of the Royal Counties Agricultural Society. There are 400 members, and it is evident Hampshire has been making large strides in apiculture during the past year. The name of Mr. H. W. West, of Swanmore, is honourably mentioned in connexion with branch work, and the Association is to be congratulated in having found an Assistant Secretary in Mr. Evan Maberly.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Upper St. Martin's Lane, London, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *King's Langley, Herts (see 2nd page of Advertisements).*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

OUR HONEY IMPORTS.

The value of honey imported into the United Kingdom during the month of April, 1887, amounted to 1711*l.*—[From a Statement furnished by the Statistical Department H.M. Customs to E. H. Bellairs, Wingfield, Christchurch.]

MR. LEE'S NEW FRAME.

[974.] On the 4th of May I received one gross of Mr. Lee's new frames, with foundation to match. As the only axe I have to grind is to get best value for my money, I should much wish to give the result. Within ten minutes or so of receiving them I had put them together, and was on my way to hive number 2 with four of Lee's frames. I removed two of their frames to number 6 and gave four of the new frames. I examined them on the 6th, three were worked out. One of the frames had the foundation slipped out at the corner, and hung down like a dog's ear about four inches. As the foundation was very tough it had not broken, so I out with my pocket-knife, opened the top bar of the frame, and pushed it into place, closing it up with my thumb and finger. The frames were used without metal ends or distance-pins of any sort, and were not hammered together at the corner, which, perhaps, accounts for the corner slipping out. The foundation was worked out straight as a dart, no pop-holes, and firmly fixed, top, bottom, and sides. In looking over the hive yesterday I thought they wanted another frame, so I went to the box where I keep them in the flat and put a frame together and into the hive with it in no time. There was hardly a cell in the Lee frames but what had either grubs or eggs in them (not hen's eggs). I was delighted with them,—so straight and clean. I feel I shall now be able to follow the advice of Père Editor in his book *Storifying and Doubling*. I had previously resolved to use the W. B. C. metal ends, and no other; but judge of my disgust when they arrived and I tried to fit one on. However, I see by this week's *Journal* it is to be adapted to the new frames.

In my humble opinion,—and I have no interest or connexion amongst dealers,—these frames will prove a blessing to us all who, like myself, are not blessed with a lot of spare time. I make no pretensions to be a prophet, but if I did I should say this frame is the frame of the future, and think when used with the W. B. C. end it is simply perfection. I think it should be called the 'Lee Jubilee Frame.'

In regard to drones, I think by cutting out a strip 1½ inches from one side and 4 inches from the bottom of *one* or *two frames*, we shall get as much drone-comb and brood as will satisfy any one. I will try it. As this is how I obtained drones with the old style of frames, may I recommend these frames to 'X-Tractor?'—CHARLES J. JELFS, *Dodford School House, Bromsgrove, May 17th.*

P.S.—Bees here are having a glorious time on the damsons, plums, pears, &c.

AGE OF BEES.—WASPS.

[975.] I cannot allow the 'proof' by your correspondent, Mr. James, of a 'positive fact' that he has bees in his apiary 'who cannot be less than twenty months old' to pass without comment. The same 'proof' could, according to my experience, be used to show that bees lived twenty years. The fact that Ligurians are seen in a hive a considerable time after a black queen has been established there may surely be accounted for by their being natives of other hives who have taken up their abode there. I have frequently noticed unmistakable Ligurians in my hives with black queens, and have always assumed that they were either trespassers or immigrants from other hives who had permanently settled there. This is a subject upon which we have yet much to learn.

It has been ascertained by experiment that wasps will, under certain circumstances, of themselves leave their native habitat and become life-members of a neighbouring colony; and if wasps—why not bees? This is one of the many points as to which bee-keepers who attempt to make the subject a science would derive profit from studying the habits of kindred insect tribes, such as wasps and humble and other bees. While mentioning wasps may I be allowed to say that it has always been a matter of regret to me to see in the *Journal*, as we did particularly last year, recommendations from different correspondents for the wholesale massacre of these unhappy innocents. In the first place, it should be known that the slaughter of queens in spring can have very little (if any) effect in preventing colonies being started in the neighbourhood.

A proportion—no one knows how large—of those destroyed are probably sterile, and a large number of the fertile that survive the winter meet with violent deaths at the hands—or rather at the mouths—of their numerous enemies, prominent among these being toads that secrete themselves in holes likely to be inspected with a view to occupation. Besides these many are slain in contests for building sites, which take place when, as must frequently happen, the same site is regarded as eligible by two or more candidates.

It may not be a very consoling thought to anyone who has spent his time and trouble in slaying (it may be) his thousands to reflect that perhaps one half of the victims were sterile, one quarter would in any case have been destroyed, say, by toads or birds, and the other quarter—well, he has saved jealous rivals the trouble of disposing of them, or being disposed of by them, or perhaps both.

But apart from these conjectures, and apart from the regret that it must be to every true lover of nature to see the wholesale slaughter of any creature recommended, I believe, Mr. Editor, that wasps, like most, if not all other insects, are not without their use, though they may be in the autumn an annoyance to the bee-keeper. It is well known that in spring they destroy vast hordes of aphides and other insects whose ravages on the buds and blossom of fruit and other trees are most serious. It may well be that by removing these pests they are doing the work for which the percentage of our fruit and honey they are apt to take without asking in the autumn is but a just recompense.—JOHN M. STONE, *Lee Park, Blackheath, 16th May.*

IN THE HUT.

'There I crouch when owls do cry.'

[976.] Puck had to sip sedative soothing syrup from the poppy when his system craved for the narcotic and stimulant which nearly every nation on the face of the earth uses in some fashion or other. Unlike him, the huttites, taking full advantage of Jean Nicot's discovery by burning the leaves of *Nicotiana Tabacum* (perchance sophisticated with leaves of varieties of the Brassica family) in retorts of asbestos, seek comfort in the bowl, for in baccy'nalian orgies

'The bowl affords relief.'

The poor bees, too (bless 'em), get their little solatium, not *sub rosa*, but under the quilt, their inmost privacy being invaded for the purpose. What a jolly good smoke one does get during a manipulation!

All the huttites have 'taken the veil' and dipped it in the waters of Lethe (not the Water of Leith, Midlothians). In future they're going to do without 'em, and try to forget they were ever used.

Hint as to fastening honey labels on tin canisters:—Mix a little honey with flour paste, and paper sticks to tin.

I notice that the favourite prescription of a Chinese doctor is a horrible pill compounded of parts of snakes, wasps, centipedes, toads, and scorpions, ground small and mixed with honey. The Chinese are no fools, and the above is not near so nasty as was the ammonia of our forefathers in pharmacy, and as are the musk and civet of to-day; the only difference being, we do not all know whence and how obtained.

In Emin Pasha's last letter (as late as October 1886) he says: '*Instead of sugar we use honey;* instead of coffee we use the seed of a species of hibiscus; *instead of stearine, candles made of wax;* soap has been made from tallow and the ashes of various trees; while meat, a few vegetables, and oil got from sesum seed, have prevented us from starving. The tobacco we are growing now is very good.'

'So work the honey-bees,'

contributing to the sustenance and comfort of our pioneers of civilisation when almost *in extremis*.—X-TRACTOR, *Horsforth.*

HUMBLE BEES.

[977.] Your correspondent, 'D. R. Grimshaw,' says that he could not find out the name of his humble bees. There can be little doubt that they were the red-tailed bee (*Bombus lapidarius*). His failure to keep them through the winter probably arose from want of warmth and quiet. If he will give them a good depth of earth and plenty of moss before the cold sets in, they will build a winter nest and hybernate safely. Of course he understands that it is only the egg-laying queens that survive, and that they sleep all the winter.—BENJ. LOMAX, *Brighton.*

UNPROTECTED BEES.

[978.] I, and my bees have just past an exceptionally cold winter; the only difference in our situations being this trifling (?) circumstance, *I* found means wherewith to keep up two fires,—aye, and pass a great portion of my time in near proximity thereto, while my bees—bless the little gems!—were on the bleakest of the bleak elevations of the village, destitute of flannel, cork-dust, carpet, quilt, or packing of any kind. One of the stocks—equal in point of strength to any I have—having spent the time in a cheap *half-inch* stuff hive, with double walls, but nothing more to cover them as roof but the half-inch stuff mentioned. I need not name the *contretemps* that caused this want of what is deemed necessary care and protection from inclement weather, it was unavoidable under the circumstances, and when I had my supposed tenantless hives—eleven in number—brought nearer to my *domus*, my surprise was great indeed, and my delight was excessive, as the ever-welcome hum sounded in my ears. Not a bee apparently any the worse for being thus 'left out in the cold,' down, down, I know not how far below zero.

Old, *aged*, as I am, I am not too old to learn; tell me then, O ye learned in the anatomy, the physiology, the *temperature* of a bee, what lesson am I to draw from the facts now related. Am I to disregard in future all the admonitions, the counsel, the cautions which our experts and bee-masters so earnestly publish; or am I to look upon the incident as constituting a marvellous escape from a violent death—a being frozen to death?—AN AGED AMATEUR.

P.S.—I find the stuff is not half-inch, it is only *three-eighths.*

[Our correspondent may consider himself exceptionally fortunate; but we should not advise any one to take his experience as a precedent.—ED.]

METAL ENDS.—TITS.

[979.] Will any one kindly inform me in the next *Journal* what is their opinion of metal ends *versus* broad-shouldered? Ten of the metal ends exactly fit into a hive 14½ in. wide, which is the width of many hives; but if there is a half bee-space at the sides of each comb when a centre comb is put to the side of the hive there will only be a half bee-space. According to this, there ought to be ⅛ in. blocks at all the four corners to keep the combs off the sides, and the hive ought to be 14¾ in. wide to take ten frames. Is this right? It seems to me that ⅜ in. is too thin for a top bar, and I think the metal ends ought to take ½ in. tops. Are there any made that size?

How is it that people will write to the *Journal* and say that tits do not kill bees, but sometimes eat dead ones that they find on the ground? I shot exactly a dozen of the great tits last spring in two days, which were hard at work on the bees. When the snow came I

could not keep the shades over the entrances unless I used very heavy pieces of pot or sheet lead. The tits pulled anything light down, and when the bees came out to see what was the matter they were at once killed.—ARTHUR J. H. WOOD, *Bellwood, Ripon, May 14th.*

[The ends are a question of taste. Hives should be made long enough to take a division-board as well as ten frames; therefore, we think 14½ inches not long enough. It is not very important to put in the ⅝ inch blocks, as you suggest, because in any case the bees would have ¼ inch space, which is sufficient for their movements. We have for years used the ⅜ inch top bar, and have never found it too thin, or give way in the ordinary way of using.—ED.]

APIFUGE.

[980.] Does the exception prove the rule, if so, I am proud to be able, through some suffering, to bear testimony to the efficacy of Mr. Grimshaw's apifuge? Up to date I have used it on four or five occasions, notably on removing a particularly irascible colony into a clean hive with perfect success. But now comes the proof of the rule. I went last evening to put a crate of sections on a colony I had hitherto esteemed a particularly good-natured one. Being in a hurry, I omitted to smoke them. On carefully peeling off the quilt they set up a whirr of anger and astonishment at having their interior exposed, but on spreading my hands, previously rubbed with the apifuge, over the frames, they quietly subsided under its benign influence. One bellicose individual, however, who had heard the commotion from below, came rushing up, and without waiting to learn the cause of the misunderstanding, or whether it had been, or could be, amicably settled, as indeed it had, thanks to the apifuge, so far as the majority were concerned, rushed at the nearest part of the supposed enemy's forces, which happened to be my left hand, and taking a good grip with its forefeet, applied its business end to its particular function in a business-like manner. It then made offensive demonstrations in the direction of my face, but, as I now had charge of its weapon, I merely smoled a smile of derision, and went on with my job. May I conclude from the above experience that the use of apifuge does not do away with the necessity for smoking?—WALTER F. CROMEY, *Levens.*

[One errant radical is generally to be found in an assemblage of the loyal and well-disposed.—ED.]

GRIMSHAW'S APIFUGE.

[981.] Allow me to bear testimony to the value of 'Grimshaw's Apifuge' to all bee-keepers. I have kept bees for the last thirty years, and have been stung many hundred times, and till now I have never dared to do anything to my bees without first smoking them and also wearing a bee-dress and gloves. I have lately purchased a bottle of this wonderful stuff, and cannot persuade my bees to sting me, do what I will with them. By using it the only unpleasant part of bee-keeping is done away with. If you jar or shake the hive bees are sent out at once to attack the intruder, but the moment they smell the 'apifuge' they change their minds, and either settle harmlessly on the hands or face or return to the hive. The scent is not at all unpleasant, rather the opposite. I have one very savage hive that smoke would only partially subdue; the effect of the apifuge on this hive was instantaneous, and not a bee offered to sting me. One great advantage apifuge has over smoke is that in the use of the former no time is wasted by the bees, whereas when the latter is used they glut themselves with honey out of the cells, which they return back after the manipulation is over, and this occupies a considerable time. Let me recommend all bee-keepers to try it.—NIGEL GRESLEY, *Netherseale Rectory, Ashby-de-la-Zouch, May 21st.*

HONEY-PRODUCING FLOWERS AND PLANTS.

[982.] Doubtless most of the readers of your valuable and esteemed *Journal* are aware that much has appeared in its columns in reference to many kinds of flowers and plants which are more or less valuable as honey-producing plants, and some of the accounts given appear very contradictory. I think if our friends were to give us a few more particulars respecting the kind of soil and the treatment the various kinds of plants require to make them honey-producing, the apparent contradictions would be much lessened. I may add that I take a very great interest in the *Journal* and also in growing many kinds of plants which have been recommended from time to time in its columns, some of which I find entirely useless as bee-plants in my soil.

With your permission I will illustrate, in some small measure, my meaning, and to do this I will describe the soil, and follow on with a few different kinds of plants. The soil, then, is a rather strong and stiff kind of clay, top soil, and clay subsoil, it is very bad to work if much is done to it in wet weather; but if dug up rough and allow it to get well frosted, it works very well. I find that a good coating of burnt earth of any kind answers better than manure for a time and makes it work much better and prevents the cracking which often occurs in dry weather.

Now let me give a few remarks respecting the plants which I have tried upon this kind of soil. First, Borage, this I find to be the best of all plants which I have tried; it grows very strong, each plant growing to about 3 ft. high, and many of them where they have room will measure 5 ft. through, and this will be always in bloom from the middle of June until the sharp frosts come and kill it, and it is also very thickly covered with bees all the time the weather permits them to fly; there is no slackness, and they visit it from morning till night; I have often heard them flying about it when it has been too dark for me to see them, and I believe they collect large quantities of one of the very best samples of honey from it. I find the bees leave nearly everything for it. Just to prove this; there is a meadow between my apiary and where these said plants are grown, and last summer when the Dutch clover was in full bloom I walked about the meadow several times, but I could see there were very few bees upon it, while the borage was one mass of bloom and bees, as though there were many hives hidden beneath the plants.

Next to the borage I find Nepeta Mussini. This is also a very excellent plant for bees, and is visited nearly, if not quite, as much as borage. It does not grow so high as the borage, and would suit those who had not much room to grow plants, but it grows very strong with me. I have several plants which measure 4 ft. across, and only 6 in. high; the masses of bloom and bees working upon it from morning till night would surprise those who had not seen it, and I can highly recommend it to those who wish to grow flowers which will look pretty and suit their bees at the same time. I have been told that cuttings of this plant were advertised in *British Bee Journal* at 1*s.* 6*d.* per dozen, but I did not see it myself; be this as it may I think it a very high price. To those who would like to try its value, I shall be pleased to send them a few cuttings, but not at 1*s.* 6*d.* per dozen; but I must ask them to enclose me a stamped and addressed envelope to C. H. W., Aylesford, Maidstone, or their requests cannot be attended to.

Next in value comes Limnanthes, which I find a valuable plant for the time it lasts in bloom, which is only about a fortnight, and then all is over until another season.

Next come crocuses and snowdrops; these are also valuable: I grow them close to my hives in large masses, and they are very pretty when in bloom. It is a pleasing sight to see how the bees roll and sport in them in early spring when they cannot get anything else.

This spring I took some pea-flour and put it into a bottle with a wide mouth and a perforated cap, and shook the flour over the crocuses. It was surprising to see what large quantities the bees would take away when found by them in this way. I have grown large quantities of pea-mint, but it is not worth much to the bees. I have also grown largely of wood sage; it is a rare thing to see any bees on it. Clarkia is also neglected by the bees, but white arabis is fairly visited until the fruit blooms appear when that is also neglected. Thyme is a fair plant while in full bloom, but the bees only visit it for a few hours in the day. Rue: I have often watched to see if I could find a bee to settle upon it, but I never could, although it is surrounded with the bees in visiting other plants. There are many other plants which I could speak upon, but I fear I have already trespassed too far upon your valuable columns, so I beg to sum up by saying that I find my bees neglect nearly, if not quite everything for borage and Nepeta Mussini, the latter is quite hardy and the cuttings strike readily with a little care in the open ground.

I have a little borage and plenty of Limnanthes seed and shall be pleased to send a little to any one on the aforesaid terms. I may also add that in very dry weather I always give my plants when I think it necessary a good soaking with water such as runs from sinks and wash-houses, and the effect is very remarkable.

I beg pardon for trespassing so far upon your columns, but I hope it may be some little use to some of our bee-keeping friends, which I am sure will give you all the satisfaction you require and I shall be well paid also.—C. H. W., *Aylesford, Maidstone.*

HONEY-COMB DESIGNS.

[983.] Many bee-keepers would possibly like to have nice mottoes and designs to set off their exhibits of honey after the manner described by Mr. Wm. McNally in your issue of the 12th May (948), but are debarred from the cost of purchasing the blocks or of making them themselves, and the almost utter worthlessness of the articles after the present season is over. To overcome this difficulty I suggest that 4-inch square cards be used to fit in or on to our 1-pound filled sections, with a letter cut distinctly out of the centre of the card, the ground-work of the card to be of a nice bright blue, or any other colour suitable to each individual taste, and on the coloured ground-work of the card some pretty gilt devices, such as flowers, fruit, birds, or bees. I claim for this idea economy and effectiveness, no loss of time to the bees in filling out blocks, and no detriment to the sections after being exhibited in this manner. Bee-keepers by purchasing half-a-dozen alphabets would always have it in their power to form any device they liked, and with care the cards would last for many years. Will some manufacturer of bee-appliances take this idea up, and issue cards after the manner I have described at a moderate price?—John Goodall, *Handsworth, Woodhouse, Sheffield, May 21st.*

HOW LONG DOES A WORKER-BEE LIVE?

[984.] The proof brought forward by Mr. C. C. James (p. 208) that he has some thousands of bees not less than twenty months old is far from convincing me, for, as he has had Ligurians, nothing is more likely than what you suggest, that one of his queens has been crossed with a Ligurian drone, amongst whose progeny will often be found marks of what I consider the improved strain, evidenced by many workers as yellow or orange-banded as the purest Italian Alp bees. And of this several of my own stocks are examples. Five or six years ago my friend, Mr. A. Morris, kindly sent me a swarm of cross-bred bees, who, and all whose descendants, have done well in my hives. My stocks have never been nearer than five miles to any other bees of the Italian Alp or Ligurian strain. I have not at any time given them yellow queens or imported new blood, and yet every season during the past five years I have observed numbers of workers amongst the black population as clearly marked as if they had just come from Liguria. If Mr. James's proof is correct, I have bees not twenty but more than sixty months of age, and still as vigorous as if only born yesterday! My impression is that this appearance of yellow-banded workers where it might be expected all would be black or nearly so, is merely the occurrence of one of these genuine traits like the dark complexion or thick lips sometimes met with in human beings very many generations from the original negro father or mother.—H. W. Lett, M.A., *Aghaderg Glebe, Loughbrickland, Co. Down.*

FOUL BROOD.

[985.] Several letters have lately appeared in your columns in regard to the spreading of foul brood by experts in visiting apiaries, but we do not seem to get the opinions of those who, living in infected districts, ought to be able to give us some useful information in regard to the rapid means by which the disease spreads through a district, until it is an exception to find any healthy stocks. I will mention several cases which have come to my notice during the last few years. In the year 1883 I was asked by a gentleman to go and see his bees as they seemed to be rapidly dwindling away. On examination I found that the hives were simply reeking with foul brood, but although there was plenty of honey in them, there were no signs of robbers; and at the wish of the owner I completely destroyed all combs and hives, although I thought it unnecessary to do away with the latter which might have been disinfected. The same year, two other stocks about one mile off were found to be suffering from disease, one very badly, which was destroyed at once, and the other after the owner had attempted to cure with salicylic acid and failed, was destroyed in the autumn, but not until he had procured another stock in a skep, which, when transferred to a frame hive in the spring, was also found to be infected, and had to be destroyed.

During the summer of 1886, in another apiary of six stocks, two or three were found to be diseased, and I directed the owner to use phenol solution; but in consequence of the directions not being fully carried out, the cure was only partially successful, and they were put into winter quarters with the disease still in the hives, but I have had no opportunity to visit them this spring, and so cannot say as to their present condition.

The last case I have had brought to my notice was about three weeks ago, when I found one stock diseased in an apiary of six, but apparently of recent outbreak, as it was not in an advanced state, so after reducing the brood-nest to a limited size, I gave the owner some phenol solution (the curing powers of which I have conclusively proved to my own satisfaction. See *B. B. J.*, vol. xii., page 298), and hope to be able to make a good report later on.

There are two questions now arise which I will attempt to answer; the first is, How is the disease spread through a district? and, secondly, What are the means we ought to take to eradicate it? for it is certain if we do not get rid of it, it will most assuredly exterminate all bees from the infected districts, and apiculture will in the said districts be given up in disgust. As to the first question, it is well known that the disease is spread by healthy colonies attacking those that are diseased, and carrying the Bacilli spores back with them to their hives, which in turn become infected, and also by healthy colonies being handled after those infected have been examined, and no precautions being taken to disinfect the hands and any utensils used. But, to my mind, there is another, and far more wide-spread, method

of propagation than is generally supposed, for it being undoubtedly possible for robber bees to carry the spores from colony to colony, I believe it is just as possible for the disease to be spread by bees from infected stocks visiting flowers and leaving Bacilli spores thereon, and for others from healthy stocks to revisit them and carry the germs of disease back to their hives.

Now, if this is the case, and it seems to me quite probable, it is useless for us to go on curing individual stocks, for whilst we are so doing they are spreading the disease around to other and healthy colonies; therefore, we ought to totally destroy all those infected, and if the hives be of wood, to thoroughly disinfect them, and they could be used again. It will, no doubt, be argued that those possessing only two or three stocks would be very loth to destroy them, but I think that could be met by bee-keepers in an infected district combining together and raising a kind of guarantee fund to compensate all whose stocks had to be destroyed; or, still better, by the County Associations taking the matter up, and paying any expenditure out of their funds, which would in itself be a great stimulus to bee-keepers to join them, and would do more good to bee-keeping than any shows can do. I can only say that I shall be only too happy to help in any way to rid the district of the pest, which takes away all the pleasures, and, by the constant anxiety, makes the apiarian's life anything but a happy one.

I would, in conclusion, strongly advise all, especially those living in an infected area, on examining stocks, to use instead of a smoker, a spray-diffuser made of a small piece of metal tube, about four inches long, and a smaller piece, two inches long, fixed at right angles at the top end of it; the longest piece is put through an ordinary cork to fit in a bottle to hold the solution of phenol, which I use the same strength as recommended by Mr. Cheshire for making phenolated syrup. When opening the stock, the diffuser is put to the mouth and a fine spray blown over all the frames, which can be repeated when necessary. To the use of the above I attribute (rightly or wrongly) my freedom from infection, as, with the exception of the case mentioned when I infected one stock (*B. B. J.*, vol. xii., page 298), I have never had the disease in my apiary, although last year one of my stocks completely cleared a diseased hive a short distance off of their honey, but they have not shown the slightest signs of disease.—J. T. Harveyson, *Finchley, May 21st.*

Echoes from the Hives.

Ealing, May 15th.—To my great surprise, I had a fine swarm this morning.—J. Gay.

Hartlip Vicarage, near Sittingbourne, May 16th.—I have had my first swarm to-day, at 1 p.m., from a Carniolan stock, and this in spite of a north-easter, which was blowing sharp at the time, and made the gentle ones angry, so the first swarm gave me the first sting of this season. The queen must be a rare breeder, for she alone, from all my stock, swarmed last year, and provided enough bees for a second, which came out nine days after her. We have abundance of food in our cherry orchards at the present time, and only want fine warm weather to enable the bees to gather it.—Thos. Scott.

Oldcombe, Ilminster, Somerset, May 22nd.—I hoped to have been able to send an 'Echo' from this part of the country before this, but there has scarcely been sound enough from the hives to cause one, in fact on only five or six days during April and about the same number up to date in the present month have the bees been able to get out to do anything like work. I have seventeen stocks alive out of twenty that I put into winter quarters, most of my hives face south and east, but I had four facing the west; and, strange to say, three of these I found had perished from starvation previous to my first examination in the early part of March, although they were well stocked for winter, and the fourth proved to be queenless. I have requeened this stock in a most simple manner—about three weeks since I selected a comb of brood from one of my best stocks on which the queen was, and simply placed it, bees and all, into the centre of the queenless hive, just using a puff or two of smoke; the next day I found she had been accepted, and had filled a large portion of one of the empty combs with eggs. The apple orchards round here are one mass of bloom, but up till to-day no bees have been able to take advantage of it; but I trust before it is all gone we may have a few fine days, and be able to replace the feeding-bottle by the super.—J. Sarell.

'Honey Cott,' Weston, Leamington, May 23rd.—Blackthorn winter we are indeed having, with north wind very boisterous, hail and rain storms making it next to impossible for the poor bees to get out, while of those that do many never return.—John Walton.

Limerick, May 23rd.—Bees in this district, as a rule, are strong. We had splendid weather from the 1st of May up to the 17th; it has been wet and cold since. Honey was coming in from apple-blossom fast, and I had them at work in the sections, but I fear they had to use all they got these past cold days. We are very late this year, apple-blossoms are only well out, and May flower in strong bud, of which there is a good show. Stocks came through winter well, they stored an exceptionally large quantity of ivy honey last autumn. I trust we shall be able to send you a good return of year's work later on. I intend to work the 1⅛ section on the storifying principle, as I find bees have more freedom without a divider, and sections are more evenly finished if the hive is perfectly level.—Alba.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

H.—*Queen-cell surrounded with Drone-comb.*—This is not an unusual case. If the bees have no opportunity of rearing a queen-cell from worker-brood, they will in sheer desperation endeavour to do so from drone-brood; but the contents of such will not be of any service to the bee-keeper.

K. Drummond.—1. The bees are not likely to take the hellebore sprayed on gooseberry bushes and fruit trees. 2. The quantity of syrup stated would be far too much, especially as honey can now be procured by the bees from natural sources.

E. M.—The bee sent was not the queen, but a newly hatched bee with all its incipient fluffiness about it.

D. H. D.—For the purpose of cleaning floor-boards it is preferable in small hives that they should be moveable; but bee-keepers prefer in longer hives that they should be fixed, as in cleansing them the frames can easily be moved from one end to the other. 2. The bee forwarded is a *Bombus sylvarum*.

E. Gibbins.—1. *Balling Queens.*—Frequent examination of hives in spring often causes balling, as would also the close proximity of the entrances. 2. *Distances of Entrances.*—We think twelve inches apart too close for entrances, they should certainly not be nearer than two feet. 3. *Effect of Cold on Queens.*—Cold winds will frequently stop queens laying, more especially if the bees are short of stores. 4. *Unfertilised Queen.*—The queen sent is a young one. We have examined her under the microscope and have found the spermatheca filled with a clear liquid and not to contain any spermatozoa, showing that she had never successfully mated. If she has laid it could only be drone-eggs. It is possible that the bees lost the queen you say did so well last year, and the one you have sent has been raised since that time, when there were no drones about to accomplish impregnation. 5. Carpentering should not be done in a bee-house as the constant disturbance would be injurious to the bees.

Cumbrian.—*Third-Class Certificate.*—Third-class examinations are arranged by the County Associations. Any one can compete. We are not aware than any examina-

tions have been arranged for Cumberland. We believe the Committee of the B.B.K.A. will arrange for an examination to take place at Newcastle, at the time of the Royal Agricultural Show in July next. Whether anything can be done to revive bee-keeping in Cumberland in this year of jubilee depends entirely upon the residents of Cumberland themselves. The British Bee-keepers' Association is always ready to assist a movement of this kind. For papers relating to examinations, apply to the Secretary, J. Huckle, Kings Langley, Herts.

A. H. W.—Please refer to reply given to 'Cumbrian.'

An Early Drone.—The syrup given now should consist of 10 lbs. of sugar to seven pints of water. It would be better if you gave them access to the syrup through one hole in the feeding-stage. They will then take what they want without getting too much.

A better spur-embedder than the Woiblet:—the Heel!

Received from Abbott, Bros., some samples of capsules, stamped with very neat and appropriate designs.

Business Directory.

For the use of Manufacturers and Purchasers of Bee-keeping Appliances.

The Name and Address and Business of any Manufacturer will be inserted in this List, under one heading, for One Pound per annum. Additional headings, Five Shillings extra. Advertisers in 'The Bee Journal,' whose orders amount to Five Pounds per annum, will be inserted Free.

HIVES AND OTHER APPLIANCES.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
Appleton, H. M., 256A Hotwell Road, Bristol.
Baker, W. B., Muskham, Newark.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
British Bee-keepers' Stores, 23 Cornhill, E.C.
Burtt, E. J., Stroud Road, Gloucester.
Edey & Son, St. Neots.
Howard, J. H., Holme, Peterborough.
Hutchings, A. F., St. Mary Cray, Kent.
Meadham, M., Huntington, Hereford.
Meadows, W. P., Syston, Leicester.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
Stothard, G., Welwyn, Herts.
Webster, W. B., Wokingham.
Woodley, A. D., 26 Donnington Road, Reading.
Wren & Son, 139 High Street, Lowestoft.

HONEY MERCHANTS.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
Baker, W. B., Muskham, Newark.
Baldwin, S. J., Bromley, Kent.
British Bee-keepers' Stores, 23 Cornhill, E.C.
British Honey Co., Limited, 17 King William St., Strand.
Howard, J. H., Holme, Peterborough.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.

FOREIGN BEES AND QUEENS.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
Baker, W. B., Muskham, Newark.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
Benton, F., Munich, Germany.
Howard, J. H., Holme, Peterborough.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
Simmins, S., Rottingdean, near Brighton.

METAL ENDS.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
Baker, W. B., Muskham, Newark.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
British Bee-keepers' Stores, 23 Cornhill, E.C.
Lyon, F., 94 Harleyford Road, London, S.E.
Meadows, W. P., Syston, Leicester.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.

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June 15, 16.—Wilts Agricultural Show. Rev. W. E. Burkitt, Secretary.

June 21-25.—Royal Counties' Agricultural Show at Reading.

June 23, 24.—Suffolk Agricultural Show at Bury St. Edmunds. Entries close June 6. J. Huckle, Secretary.

July 11-15.—Royal Agricultural Show at Newcastle-on-Tyne. Post entries to June 1st. J. Huckle, Kings Langley.

July 20-22.—Lincolnshire Agricultural Society at Spalding. Entries close July 4. R. R. Godfrey, Secretary.

July 26-28.—Gloucestershire Agricultural Show at Cheltenham. Entries close July 12. W. D. Slade, Sec.

July 26, 27.—Warwick Agricultural Society at Sutton Coldfield. J. N. Bower, Secretary.

July 27.—Bishops Waltham Show. (Hants and Isle of Wight Association.) H. W. West, Hon. Sec., Swanmore House, Bishops Waltham.

August 3-5.—Yorkshire Agricultural Society at York. Secretary, H. L. Rickards, Poole, near Leeds.

August 9, 10.—Irish Bee-keepers' Association at Salthill Gardens, near Dublin. Entries close August 2. Hon. Sec., Henry Chenevix, Blackrock, Dublin.

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READING.

JUNE 21—25, 1887.

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In connexion with the Suffolk Agricultural Society's Exhibition,
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On Thursday and Friday, June 23rd and 24th, 1887.
Secretary: John Huckle, Kings Langley.

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THE BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, Cambridge Circus.'

[No. 258. VOL. XV.] JUNE 2, 1887. [PUBLISHED WEEKLY.]

Editorial, Notices, &c.

OUTLINES OF BEE-KEEPING FOR BEGINNERS.

(*Continued from page* 212.)

XI.—HOW TO PUT A SWARM INTO A HIVE.

1. The bees which leave the hive to swarm fly out in large numbers, thousands of them wheeling about in circles so that the air seems alive with bees. They soon settle, usually on some bush or tree at a short distance from the hive, and form a cluster, which grows larger and larger as the straggling bees join it. As soon as most of them have settled and become quiet the swarm should be placed in a hive, or it will of its own accord seek a home and be probably lost to the bee-keeper, as under such circumstances bees will sometimes fly a great distance before they settle again.

2. If the queen does not join the bees when clustered, they return to the old hive. They will also leave the hive if the queen be not secured with the bees when the swarm is hived. Sometimes swarms do not seem inclined to cluster; and if the bee-keeper sees that they rise higher and higher into the air, he should endeavour to stop their flight by throwing water from a syringe over them in such a way as to resemble rain. This will generally have the effect of making them settle at once.

3. If the bees have settled on a bush near the ground, sprinkle them with cold water from a garden syringe and close clustering will be the result. Spread a cloth under the cluster, and at one end place a floor-board, bringing the end of the cloth over the edge of the board and place the hive on it with the front, as near as possible to the cluster, propped up about one and a half inches by means of a stone or block of wood. With a sudden jerk dislodge the bees on to the cloth in front of the hive, which they will quickly enter.

4. If the branch on which the bees have clustered is small and not valuable, cut it off, taking care to avoid all jarring, and shake the bees on to the sheet in front of the hive.

5. If the bees have clustered on the branch of a tree too valuable or too thick to cut off, shake them first into an inverted skep. Hold the skep bottom upwards in one hand under the cluster, and with the other give the branch a smart shake so as to let the bees fall into it. If they are to be kept in the skep put a floor-board over and turn the skep on to the stand the bees are to occupy. If they are to be put into a frame-hive invert the skep and with a sudden jerk throw the bees down on the cloth close to the front of the hive.

6. If they alight on the trunk of a tree brush them gently into a skep, or, if possible, place its edge near the upper part of the cluster and drive them up by blowing a little smoke, or placing a cloth dipped in carbolic solution under them. A piece of comb containing brood fixed inside the skep will induce the bees to take to it more readily.

7. If the bees settle on the ground, the hive should be set close to them, and with a spoon gently place a few near the entrance. The hum of these will entice others to follow, and in a short time they will all enter.

8. If moveable comb-hives are to be used it is best first to secure the bees in a skep or a metal pail, from which they can be poured out gently on to the cloth in front of the hive.

9. In moveable comb-hives with legs, turn up the quilt and remove three or four of the outer frames, and from the pail pour out the bees into this space. They will run in and cluster among the other frames; then return the frames which have been taken out and lay the quilt gently over them, leaving a small opening at one corner for the straggling bees to enter. Put on the cover and prop it up to allow free ventilation until the evening, when it can be put in position.

10. The bees should be taken to the stand which they are to occupy as soon as possible after they have been hived, and should be shaded while they are in the receiving hives or skeps from the heat of the sun.

11. Despatch in hiving is important as bees become more difficult to handle the longer they are out of the hive, and there is a danger of their rising and flying away.

12. If the bees are to be kept in a straw skep it will require no preparation, but should be perfectly clean. Frame-hives will require the frames furnished with guide-combs or comb-foundation, and when they are propped up during hiving care

should be taken to have the frames hang at right angles to the front, otherwise the heat and weight of the bees would displace the comb foundation, and they might possibly break away from their attachments. Great care should also be taken in moving these hives when the swarms are in them, and they should be carried very steadily and held level. The hive should be adjusted in its place, taking care that it is level across the combs.

BRITISH BEE-KEEPERS' ASSOCIATION.

Bury St. Edmunds Show.—We desire to call the attention of our readers to the fact that entries for this Show close on June 6.

Bee-keepers and manufacturers residing in the counties of Suffolk, Norfolk, and the adjoining counties, should give this Exhibition their best support. It is hoped that this Exhibition will tend to revive the work which has been somewhat retarded in consequence of the Suffolk Association having been suffered to lapse during the past year.

A GOOD EXAMPLE.

We have much pleasure in giving insertion to the subjoined extract from the *Canadian Bee Journal*, and in calling the special attention of manufacturers to it as an act worthy of all commendation:—

'From the *American Bee Journal* we clip the following, relating to the Heddon Hive. Messrs. Geo. Neighbour & Sons, in a late letter, say that "Mr. Heddon and his 'new hive' are 'well known in England.'" In a recent letter, they say that as they wish to make some hives containing "some of the features" of Mr. Heddon's, and desire to "do honour" and "not be considered pirates," they send ten dollars as a "token of respect and appreciation." As the hive named is not patented in England, this shows that Messrs. Neighbour & Sons are most scrupulously honourable and just in their business relations. With pleasure, therefore, do we put this news item on record, as a pattern for bee-keepers everywhere.'

SPRING MANAGEMENT BY AMATEUR EXPERT.

'Mel sapit omnia.'

If you have mismanaged your bees during the past eight weeks your prospects of a good honey crop are *nil*. If you have managed them so well that all your hives are crammed with bees and well filled with brood, you need not trouble to read this any further, as you do not require any advice I may be able to give you. But few of us have all our hives equally strong, and as it is yet too soon to super in these parts, the point is how can we improve the occasion and turn the time now being spent in comparative idleness by the bees to good account. I will commence by saying whatever strength your stock may be, be sure to give them too little room rather than too much while the cold weather lasts. When it is warm the bees can and do spread themselves out and cover more space of comb, but during the cold nights they crowd together and leave all the outside combs, as little short of 80° Fahr. will do to hatch brood in, and 85° will be better still.

We will suppose you have a weak stock, and one or more strong ones, and you wish to make this weak stock sufficiently strong to be of service, I purpose telling you how you may 'rob Peter to pay Paul' to accomplish it. Now I am talking about strong stocks, and by that I mean a hive that is as full of bees as it can well be, and the queen still laying. If it is not so, leave it alone, as it is better to have one weak and one strong than two only moderate. Get a little syrup over night, and scent it, and feed the two or more hives with it that you intend to operate on. Having done so, anoint your hands with Mr. Grimshaw's 'apifuge' some time about mid-day, open the two hives—if you can get help so much the better—go gently but firmly, and do not tremble, the bees will come and smell at you, but never mind. Take out two frames of bees and brood from the strong stock, be careful not to have the queen on either of the combs, stand in front of the hive a few feet, and gently tap the top of top-bar with one hand. Most or all of the old bees will fly home to their old hive, and you can now give the combs and young bees to the weak stock. If the latter has been so weak as not to cover all their combs, you can take two empty combs from it, and having shaken off all the bees from the combs, give them to the strong stock in place of the full ones and young bees you have taken. If you think this is robbing the strong stock too much you may give only one comb or you may take one comb from more than one strong stock if you have them; or, on the other hand, you may simply shake the young bees on to a sloping board in front of the weak stock and allow them to run in. This latter is preferable to giving brood without bees, probably, as for want of sufficient bees in the weak stock to cover the brood, it may get chilled, and it is astonishing how fast a weak lot may be made strong by this method.

Why feed with scented syrup, 'A. E.?' (*a.*) Because the bees in the weak stock shall fail to recognise those given them from the strong one as not being their 'own kith and kin.' (*b.*) Because neither lot shall not ball their queens. The danger of this is greater in the weak lot than in the strong one. And, (*c.*), because there shall be no fighting. Now tell us why you say 'apifuge,' and make no mention of smoke? Because smoke causes the bees to gorge more fully, and consequently makes them more sluggish, whereas you want them to be so nimble that the old ones readily take wing when you 'tap' the bar of their frame.

One word in closing. If you have not fed during the past cold spell, you must expect to find all your bees dead to-morrow morning; and if you want any profit on a season like this, you must feed! feed!! feed!!! For the present I have said my say, so *au revoir*.

Foreign.

HANOVER.

Natural or Artificial Swarming?

A natural swarm issues when there is an excess of population in a hive. This, however, is only found to be the case when the colony has a fertile queen, a large and healthy population, and an adequate supply of food. The departure of a swarm is, as it were, the creation of a new being of the same kind. Other animals, it is possible to propagate by breeding from a single individual, but our honey-bee cannot thus be propagated. The united efforts of the queen and thousands of worker-bees are necessary to the existence of the colony. I look upon swarming as an act of reproducing or propagating the species. When bees have the opportunity of taking advantage of the necessary favourable conditions, their inherent instinct is always sure to awake. As soon, therefore, as nature sends warm weather and nectar, we find the queen actively engaged in laying eggs, the extension of the brood-nest keeping pace with the rise in temperature and the development of bee-pasture. When a colony has raised a very large number of worker-bees, and the combs down to the very edges are full of sealed and unsealed brood; when drones have made their appearance and queen-cells been commenced,

we may expect a natural swarm to issue. As a rule, the old queen with a portion of the population leaves her hive between nine o'clock in the morning and three in the afternoon.

Most of the young bees which have to keep warm and feed the brood, remain in the hive. In the course of a few days a young queen hatches, and if the colony has no intention of sending out further swarms, the workers, after the young queen has been impregnated, destroy all the other queen-bees which are still in the cells, and the parent hive will then be in order again. In natural swarms it seems as if the bees acted with deliberation, and what is more after the swarm has been hived and placed in position in the apiary, we find that no bee of the new colony returns to the old hive, but all enter their new home. The population of the swarm are more industrious than the other colonies which have not given off swarms. It is as if every individual bee knew that it is necessary to work hard in order that comb-making may progress and provisions be accumulated for the coming winter.

In natural swarming, the initiative proceeds from the colony. The bee-master certainly may assist and stimulate the impulse of swarming by a plentiful supply of food and increase of the temperature in the hive, &c. We bee-keepers of the province of Hanover, therefore, are in the habit of placing the parent hives in our sheltered bee-house in such a position as to be exposed to the sun from 9 a.m. to 3 p.m. We use round hives made of straw and having thick walls, and from the middle of April we stimulate our colonies by giving them plenty of honey. An artificial swarm is the work of man. As the initiative proceeds from the bee-keepers, there is a possibility of serious mistakes being committed, to the detriment of the colonies.

From what I have said about natural swarms, it will be seen when and how artificial swarms ought to be made.

1. An artificial swarm should only be made at the proper time of the year, when there are plenty of worker-bees in the hive, when the combs are quite full of brood, and when we have either sealed royal cells or queens at our disposal.

2. Swarms made artificially ought to resemble natural swarms.

3. Some comb with brood as well as worker-bees to nurse the brood, should be left in the hive from which an artificial swarm has been taken. Care should also be taken to ensure the early reinstallation of a queen in the parent hive.

If these conditions are complied with in making artificial swarms, a bee-master is not only enabled to get swarms when he likes, but he also prevents waste of honey which is a consequence of natural swarming.

Permit me to show you the best way of making artificial swarms. You are aware there are various methods, the best of which in my opinion is that adopted by Mr. C. J. H. Gravenhorst, the most skilful living bee-master. He takes all the bees of a colony together with the old queen, and places them in a new hive in which he inserts some guide-comb, one honey-comb, and one brood-comb, but the latter for one day only.

Most of the old bees, of course, return to their old hive in the course of the day, and thus the brood receives the necessary attention. A mature royal cell or a queen is then introduced into the parent hive which is thereby placed in the position of a colony which has given off a swarm and its existence is secured. If the artificial swarm be made before the commencement of the real honey season a parent hive deprived of a swarm and managed in the way I have stated is in a position to yield incredibly large returns. The number of worker-bees in such hive is increased every day by the young bees which leave their cells, and as no eggs are deposited because the queen is either still in the cell or, if hatched, has not yet become impregnated, all the worker-bees can devote themselves entirely to gathering honey. Indeed it is not uncommon for such a colony to collect 200 lbs. of honey in a season if the bees are able to fully utilise the acacias and lime-trees.

This method, of course, necessitates a honey extractor to remove the honey from the cells frequently; if this is done at the proper time and while pasture continues abundant, a queen-excluder will be quite superfluous. Even should the queen have become fertile she will scarcely be able to deposit eggs into a great number of cells as most of them will be full of honey. The artificial swarm also makes good progress and very beautiful worker-cells are made by the bees while such a colony makes no preparation for swarming the first year.

Taking the brood-combs from the parent hive and leaving the queen and the old worker-bees in their old place in the apiary is in my opinion a mistake. If this is done, breeding will go on with increased energy, and in a short time the colony will again make preparation for swarming. Instead of accumulating honey, the bees will direct all their efforts to swarming, and should no autumn pasture be available the result of the bee-master's exertion will be an increase in population instead of a good honey harvest.

The artificial swarm will also have a bad time of it. All the worker-bees which fly out to gather honey and which are old bees, return to their former hive the helpless only remaining to nurse the most helpless. Such colonies frequently become a prey of moths. This method of making artificial swarms is the most wretched one that has ever been devised. It may happen that such a colony will commence to work when there are hardly any flowers left to visit.

On whatever plan a bee-keeper makes an artificial swarm it is necessary that he should examine the colonies operated upon the following day, and again a few days later to see whether his performance has been a success. If not, he ought to assist the colonies by inserting some brood-comb, honey-comb, or empty comb. Man's work is seldom such that he is able to exclaim, like the Architect of the universe, 'It is very good;' but if he succeeds so far as to have all his colonies in a condition to follow to the fullest extent their instinct to accumulate honey when the season is at its best, then he may be called a bee-master, and will derive ample returns from the pursuit of bee-keeping.

It is a mistake, however, to suppose that artificial swarms can only be made when bees are kept in hives with moveable combs. Nowhere, perhaps, are more artificial swarms made than in the Lüneburg district. The Lüneburg bee-keepers generally allow their colonies to swarm voluntarily, but when a stock does not send out the first swarm readily, they do not wait long but drive the swarm out of the hive and they do not lose much time over this. At this time of the season the bees readily enter the empty hive which is fixed on the hive from which the swarm is to be taken. The queen is among the first bees that leave the parent hive. It is not necessary to drive off a large number of worker-bees, as the Lüneburg Heath bee-keepers are in the habit of putting up the swarm where the parent hive has been, the latter being removed the day afterwards and put in the place of another hive which is able to part with a portion of its population. In some districts another method is adopted which is much more simple and gives good results.

A parent hive which has given off a first swarm and is about to send out a second swarm, is made to change places with a colony having a large population that is not inclined to swarm. The bees of the latter enter the hive that is going to swarm and leave it again when the first second swarm takes its departure. By means of such a colony we are able to deprive

four colonies at least of their superfluous population and to make as many large swarms; as swarming involves a great expenditure of honey, the Lüneburg bee-keepers prevent the issue of swarms when no longer desirable. When a colony has furnished one large first swarm and one or two second swarms, it must not part with any more bees, for it is one of the first rules that the parent hive should retain a very large population in order to fill our honey-casks.

The colonies in an apiary of sixty hives are all in the condition of a stock with moveable combs from which swarms are obtained *à la* Gravenhorst. As the old hives do not give up swarming voluntarily the bees are driven off in the evening, and all the royal-cells cut away, the empty parent hives being tied up and left without bees for a night. The bees are shaken into the grass and an empty hive is placed over them. During the night the bees ascend into the crown of the hive, accepting one of the queens and killing the others. The next morning the swarm is driven back into the parent hive, and then all inclination to swarm will be found to have passed away.

It is further to be remarked that a natural swarm is rarely ever such as to satisfy bee-keepers in regard to population, and the swarm, therefore, has to be assisted. First swarms with small population are strengthened by bees from second swarms, and second swarms are added to second swarms until the hive is half full of bees.

These few remarks of mine will show you that the bee-master will give no preference either to artificial or natural swarms. I accordingly answer the question asked as follows:—

1. A beginner in bee-keeping must remain satisfied with natural swarms until he has made himself thoroughly acquainted with the life and doings of bees.

2. A bee-master will not decide either in favour of the one or the other, but will always proceed in a manner which in any given case appears to him to be most advantageous.—Lehzen of Hanover (*Translated from the Nordlingen Bienenzeitung*).

AUSTRALIA.

A very curious discovery was made some time ago by a French naturalist, M. Guilmeth, in the course of one of his journeys of exploration in Australia. It was in the month of May, when one day M. Guilmeth noticed in the thickest part of the branches of a eucalyptus tree at about eighty metres from the ground a kind of a hut of a very peculiar shape, about which there was quite a swarm of black bees unknown to him. He ordered his men to proceed with the cutting down of this gigantic tree, an operation which occupied twenty-eight hours. It was then found that this peculiar object was a monster hive or bee-nest, weighing 4500 kilos, and containing 3500 kilos of an exquisite honey strongly flavoured with eucalyptus. This discovery was the subject of a lecture delivered by Dr. Thomas Caraman at one of the recent meetings of the Academy of Medicine.—From the *Patriote de Bruxelles.*

CALIFORNIAN HONEY IN ENGLAND.

We have before us the *Annual Market Review* of the honey and beeswax business of California for 1886, as issued by Messrs. Schacht & Lemcke, of San Francisco, Cal., shipping and commission merchants. From it we glean some very interesting information. We find that the number of cases of honey (each case, we believe, holds an average of 112 lbs.) shipped to England in 1885 amounted to 10,000, and in 1886 only 3475 cases, of which 1500 were of the production of 1885. These gentlemen estimate that the total production of honey for 1886 amounted to 2000 tons extracted and 500 tons comb honey. The exports to England as given here look well on paper, but on a closer examination we find that a very large quantity of the honey thus shipped to the British market remains unsold on the docks even to this date, so that the reason as given by Messrs. S. & L. for the small shipments of 1886 is nearly in accordance with the facts as we find them. The reason they give is that 'the small shipments to Europe in 1886 were caused by the low prices ruling there in consequence of too heavy shipments in the preceding years, and by no means by the decreasing demand abroad, because Californian honey finds more and more favour everywhere. On the 14th of October last no less than 910 cases of Californian honey were put up by auction at the docks in London, England, and one-half of it only found buyers, the balance being still on hand. The commission merchants carry stocks generally about a year before disposing by auction, so that it is probable many of the 1886 shipments are still waiting for purchasers. We give in the above only the number of cases held by *two* firms, and it is probable that there is in small lots at least as much more of the 1885 crop as here given. The prices at which honey was disposed of in California was 3 to 4½ cents per pound, according to quality. It has then to be sent to England, freight paid, and stored there for nearly a year (the 910 cases reached London July, 1885), there to be sold at an average of 20*s.* per cwt. (112 lbs.), the lowest being 13*s.* 6*d.*, and the highest 26*s.* Off this 20*s.* must be deducted for discount, commission, brokerage, trade allowances, postage, insurance, dockage, and other charges, amounting, we are told by the principal of one of those firms, to about 2*s.* per cwt., so that the exporter gets 18*s.* per cwt. nett, and out of this has to pay freights, &c. The price per pound received, on the average, for the honey which was disposed of at that time was, therefore, from 3 to 3⅓ cents per pound. Most of you will be able to figure up the profits in these transactions. We give these particulars that some of those who still have faith in the 'commission' system of disposal of our honey in the English market may have new ideas to think upon. All the facts and figures given here are taken from written and printed matter before us.—*Canadian Bee Journal.*

DEVON AGRICULTURAL SHOW, AT NEWTON ABBOT 18TH, 19TH, AND 20TH MAY.

(*Extract from 'Devon and Exeter Gazette.'*)

The Bees and Bee-keeping Appliances.

The show of bee appliances and bee manipulation experiments in connexion with the Devon and Exeter Bee-keepers' Association was conducted by Mr. James Dallas (Hon. Secretary), assisted by Mr. W. N. Griffin, so well known to bee-keepers in Devon as having started the Association some thirteen years ago, and who acted as its Hon. Secretary during the first ten years of its existence. The exhibition, on the whole, may be considered a fair one. There are very good displays of hives and bee appliances exhibited by Mr. Baldwin and Mr. Butt. There are also some of this year's sections of comb honey exhibited by Mr. Tribble, and considering the lateness of the season they did much credit to the exhibitor. There is every chance of the present being a good year for honey, although there is a probability that it will be late. In the class for new appliances and articles made from the products of the apiary there were several worthy of notice. Mr. Griffin had on view his now celebrated honey dubbin, known as 'Griffin's Leather Preservative and Waterproof Compound,' which has been highly spoken of by the leading sporting papers, and a short time ago the *Court Circular*, in a special article devoted to it, spoke of it as a very useful composition. It has been tested by the Admiralty, and found to be of great merit as a preservative of leather. From the numerous high-class testimonials we have

perused we consider it a really good article. Passing on to the honey extractors there are several very useful machines shown. Bee-keeping, we may certainly say, is becoming a national industry, and we are pleased to see that the agricultural class are doing all they can to promote the efforts of the Devon and Exeter Association.

A short distance from the tent which contained the appliances, the bee manipulations were conducted by Mr. Baldwin, of Bromley, Kent, who is expert-in-chief of the British Bee-keepers' Association. The first day, through the severity of the wind, the manipulations could not be held; and the last day of the show the gale was so terrific the bee-tent was much injured, together with many others.

The Association offered prizes for competition in eighteen classes, which were very well filled. The judges were the Rev. P. Williams, rector of Rewe; Mr. J. Thacker, Ottery St. Mary; and Mr. J. P. Kitson, Torquay. Amongst the prize list Mr. S. J. Baldwin was awarded first prizes for hives, collection of appliances, and comb foundation; Mr. Skinner obtaining second for bar-frame; Mr. Butt first for straw hive. Mr. J. Thacker was awarded a prize for last year's sections. A special prize for excellence was awarded to Mr. W. N. Griffin for his honey dubbin or leather preservative and waterproof compound.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *King's Langley, Herts (see 2nd page of Advertisements).*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

BEE-OLOGY.

[986.] I think 'Useful Hints' is in error when he attributes the visits of his bees on the fallen catkins of poplar-trees to searching for nectar. I have noticed the same peculiarity in their preferring the fallen to the persistent flower-buds of the balsam poplar, and have found those on the ground rich in propolis round the flower bases, for the fact is that nectar ceases to flow when the catkin breaks from the tree, the sap pressure being thus removed and the exudation of nectar thus stopped.

I should like 'X-Tractor' to think of the wonderful and wise provision of nature which sends the scent of nectar down on the gentle gale to our bees in *their* huts (wooden or straw, it matters not), for the heaven-sent perfume enters the abode of the humblest peasant as as freely as it does the costly mansion of the wealthy, the picturesque skep, or the dog-kennel-like bar-frame hive (do not our gardens look like doggeries or henneries, *pace* Mr. 'U. H.?') But I am digressing. Our bees ride out against the wind empty-pouched, and are guided to their food by their never-erring sense of smell. They may dive into the shelter of a drain, tack about, port and starboard, extend themselves out full-length and rise on the airy billows, or, bending the abdomen inwards, swoop downwards and forwards *against* the wind, just as other barks do *before* the wind, but ever unerringly on the scent-laden waves towards the nectar fields. Then when heavy laden how easily they float homeward, requiring little exertion beyond that used to just sustain them!

Omniscient critics may tell us of their bees always flying empty *with* the wind, and laden against it home again; their bees always do behave differently to most others. We know that the bees from one hive gather from various quarters at the same time, but the fact remains that the infinitesimally fine sense of smell as a nectar guide, and the intensely acute telescopic vision as a colour and pollen guide, are the normal and chief stays on which our bees depend.

This morning I saw half-a-dozen bees engaged in removing a tattered piece of tape from a hive, and the rapid rate they went at it along the alighting-board excited my curiosity. They looked like half-a-dozen dogs dragging a sledge, each dog having in its mouth a cord, passed longitudinally between the fore and hind legs. Sometimes we notice bees seemingly entangled in beds of ravelled string or cotton, and if we proceed to set them free with a pair of scissors we find a method in their madness,—the jaws have hold of a single thread, which passes under the thorax and abdomen, thereby not interfering with either leg or wing movement.

Do we ever wonder *why* the bees' gathering is circumscribed within about a two-mile radius? I came home the other night *into* a storm (not *domesticus*, but) the centre of a cyclone with hail, rain, and wind beating and blasting from 'a' the airts the wind can blaw.' As I climbed the hill I trembled for the poor bees, for everything was so fair and sunshiny three miles away. Imagine, if you can, my delight to find all right, and not a bee abroad or stirring.

A delicate aneroid barometer falls on the approach of a bank of clouds; the sensitive petals of the daisy, the anemone, and many other flowers close on the approach of rain, in order that their pollen may be protected from the destruction wrought on its contact with moisture. Then why may not the hairs of bees, either on the body or on the antennæ, be equally hygrometric, and warn the bee of a coming storm, whilst she is comparatively near home in her gathering-ground of about twelve miles circumference? Certain is it they get a storm warning somehow, for look how they come trooping in (and none leaving) sometimes, and look, too, how soon *we* have to troop indoors for shelter and smoke! Bees often fly in light rain, for then the rapid vibrations of the wings beat the drops as they fall into a harmless spray; but as for the heavy thundershowers, I closely connect them with the restricted area in which the bees fly, and see another marvel of providential wisdom.—R. A. H. GRIMSHAW, *Crag Hill, Horsforth, near Leeds.*

HONEY *v.* SUGAR.

[987.] From a hygienic standpoint the value of honey is scarcely realised by the masses. Were it the case the *use* of it would have kept pace with the increased use of sugar for the past twenty-five years, which it has not. Years ago honey was to a great extent the *sole* sweetening medium, and the general health of civilised people was better than of the same classes to-day. The price of honey has gradually placed it among the luxuries, while sugar, from its cheapness, has been substituted in its stead. 'Had the science of bee-keeping,' says one writer, 'been in its present advanced stage when the sugar-cane industry began its rapid growth, the use of sugar would have been considerably retarded by the contemporaneous march of its more wholesome competitor, honey, which then held the field.'

By modern methods employed in bee-keeping the purity and perfect cleanliness of honey are guaranteed, and had the rational culture of bees marched along with scientific sugar-making at an early date we should have heard less of cheap and nasty substitutes (as the glucose mixtures for instance, manufactured potatoes, sawdust, rags, &c., frequently) for pure sugar and wholesome honey. The latter would have been produced at so low a rate that it would have held its own as the

most delicious food, sweetmeat, and saccharine diet, either rich or poor could possess.

As some are already aware, honey is a perfect substitute for cane sugar in preserving fruits, in wine and beer making, and for cider in manufacture of vinegar, while as a medicine in many forms it is invaluable.

A leading medical and scientific journal advances the following good points in reference to its use: 'But for cane sugar there would most probably not be so many millions of artificial teeth in daily use as there are, the grape sugar of honey being at once fit for assimilation, whereas cane sugar (one has noticed how the eating of sweets increases thirst!) calls on a laggard saliva to convert it into grape sugar, and rests on nooks and corners among the teeth, fit food and breeding-ground for caries, schizomycetes, sphæromycetes, and what not, which turn it into acid, the said acid acting upon the lime of the teeth and dissolving them.'

Because cheap cane sugars have been taken into the stomach in unreasonable quantity, the liver has been unable to transform them, resulting in disordering both organs.

Dyspepsia and biliousness are probably caused more by the use of cane sugar than most of us think; indeed, Mr. Cheshire tells us that if cane sugar be injected into the blood, it is at once excreted, which is not the case with grape sugar. Let us then remember that it is only grape sugar which the system can at once use as heat-giving, fattening food, and this it is which honey supplies ready prepared for us by the bee in Nature's laboratory.

Honey will carry along with itself into the stomach for digestion more bread (starch, &c.) than butter, each helping the other, and a pound of honey at 8*d.* or 9*d.* per pound will consequently go as far as two pounds of butter costing 3*s.* Here, then, is decided economy.

It can be used for almost every purpose we now use sugar for, and by the principles of modern bee-keeping it is becoming more plentiful and cheaper year by year. A great objection to its free use in past years was its comparative high price, owing to the restricted supply caused by the annual destruction of bees. This is now removed.

Another serious objection was the fact that honey disagreed with many people. The wonder is that it agreed with any one, for a common way of obtaining it (after smothering the bees) was to cut out the combs, containing young bees and pollen besides honey, and squeeze the whole in a cloth, straining the result for use.

It will thus be easily seen, without entering into details, how much objectionable matter was thus imported in the honey, which would tend to disorder delicate stomachs. All this is now changed. No brood (young bees) is now allowed by the bee-keeper to be hatched in the clean, snow-white sections we see in the shop-windows of fruiterers and grocers who sell the honey, the whole of which honey and comb may be spread on bread and eaten, the cells being so thin that it takes six cell-walls to equal the thickness of ordinary note-paper.—(Dr.) W. G. Phelps (*Practical Farmer*).

BEES EATING RIPE FRUIT.

[988.] I am truly surprised to read what Mr. John Moore says about wasps not eating ripe fruit. He cannot have been a very close observer of the wasp and his doings when he says that Mr. Wasp will not touch grapes indoors unless robins and tomtits first have a bite. I always have found the wasp will eat grapes and every other sort of fruit without the aid of robins or tits either. I advise Mr. Moore not to write such an article as that to any one of the gardening papers, if he do he will get a good snubbing for his pains in saying wasps will not eat grapes before 'bobby' begins his work for him.

Does Mr. Moore know the wasp was the first paper-maker, and that he can bite and chew almost anything, aye, even chew and bite Mr. Moore?—R. G.

OBSERVATORY HIVE.

[989.] Having an observatory hive, which I can examine in my house, I write to suggest that the large number of drones in a hive may be accounted for by the necessity of maintaining the heat in a hive. During the summer the workers are out collecting while the drones crawl about over the brood.

Can any correspondent explain why the queen lays her eggs in a semicircle? I would suggest this is also for warmth.—Edward Liddell, *The Limes, Watford.*

AGE OF WORKER BEES. (959.)

[990.] If my brown queen in No. 7 had formed, as you suggest, a *mésalliance* with a Ligurian bandit, surely by this time at least four-fifths of the bees in the hive would be orange-banded instead of only about one-sixth, who, I contend, must be the survivors from those born in 1885.—C. C. James, *Papworth, St. Agnes Rectory, St. Ives, Hunts, May 23rd.*

[On the contrary, it is quite in accordance with the well-established fact, that if an English queen mates with an Italian drone only a few of her workers will show the yellow bands, whilst most of them will resemble the mother and show no trace of Italian blood at all.—Ed.]

WHITE EARTHEN JAR FOR HONEY.

[991.] May I suggest what I think would be a useful article for those who store a quantity of honey for family consumption in winter:—It is a pure *white earthen jar, with a screw lid,* in shape and size like our glass jars. They would look nice with a label even for sale purposes, but their value would be in their strength; they would be less liable to break when the honey is solid and is wanted without spending time to melt it. If such jars were obtainable, I, for one, should much like to have some.—J. E. Rosoman, *Leatherhead, May 20th.*

CONDEMNED BEES.—(968.)

[992.] In reply to 'Rector' and Mr. Oetzmann, condemned bees in this locality have been exceptionally good. I have, for myself and friends, taken upwards of sixty skeps last autumn; these have been wintered in lots of from one to five skeps to each bar-frame hive. I find that they have all passed through the winter in first-rate style. Those hives that were made up with the contents of only one skep have done equally well with those that contained from three up to five with a consumption of not half the quantity of stores.

Some of these were hived on foundation, others on empty combs (of course they were supplied with at least 20 lbs. of syrup), and one lot, after refusing the foundation, which was undoubtedly adulterated, built their own comb perfectly straight, though they were not taken before late in October, and are now crowded on eight frames all filled with brood, collecting honey from fruit in abundance. After this, please don't let those who have no empty or stored combs despair, as I find no difference between those supplied with stored or empty combs, and those with foundation.

I noticed rather a peculiar occurrence with regard to an Italian queen introduced to a black stock so late as November 10th last. While watching the hive one fine day last month, I saw her quietly leave, returning in about half-an-hour. Now, please, don't say you must have been mistaken, as twice since that time I have seen her leave; and each time I have been accompanied by a

friend, not a *novice*, but one that has kept bees for fifteen years and knows a queen when he sees one. Once she only stayed away five minutes. Apologising for the length of this letter—but as it is my first I have had rather a lot to tell you—hoping those who have not empty combs or stored ones will not hesitate to take condemned bees this season, and that it may thus do some small amount of good, is the hearty wish of—NIL DESPERANDUM.

A CAUTION.

[993.] In using wired frames, will your readers kindly note that the comb-foundation, besides having the wire embedded into the mid-rib, must be firmly fixed into the saw-cut of top-bar, or else fastened to the same with melted wax; if this is not done and the frame put into a strong stock, the comb-foundation will slip down the wires and form an interesting, but not a model comb? May I suggest that any one can make a wire embedder by taking a circular piece of tin, cut nicks in all round about an eighth of an inch apart and three-eighths long, break every other tooth off, and, with a pair of pliers, bend each of the others half-way round, make a hole in centre of tin, fix a handle on, and you have an embedder that will do its work as well as one costing half-a-crown. Foundation should always be warmed when using the embedder. I hope that this will be the means of saving some sheets of comb-foundation.—H. J. SANDS, *Harborne*.

THE WAYS OF SOME 'HUMBLE BEES.'

[994.] DEAR MR. EDITOR,—This is a copy of a letter which I sent to the *Leeds Mercury* on my humble bees kept during the summer of 1885:—

'I have got two chocolate-cream boxes, with a small square hole cut in the front, at which the bees go out and in as they please. I get the bees by taking their nests in the woods, and catching a few of those which could fly. I gave them some sugar, moistened with water, in a little tin lid, at which they began drinking immediately, and they settled and made themselves at home in their new quarters at once. I keep the boxes out in the garden, and often watch the bees come out of their house and fly right away out of sight and over the trees, but they never forget the way home again. Although I often handle them, they never think of stinging me. Sometimes they seem quite drowsy, as if they couldn't fly. If I take one in my hand when it is in that state, and lift up my finger on its right side, it will lift up one leg, and then if I lift up my finger on the other side, it will lift up a leg on that side. It seems as if it said, "Don't hurt me." I call them my performing bees. They express their anger by running about the box and making a buzzing noise. They do that when I lift up the lid to look in. The young bees come out of oval cases like brown paper. The bee begins to eat a small hole, and sometimes the others help it.'—DARCY GRIMSHAW, *Crag Hill, Horsforth, near Leeds*.

SECTIONS.—BEE-HOUSES.

[995.] I hardly care to write in defence of my last letter to you, and certainly I do not wish to enter into a controversy on the subject. Allow me, however, in answer to the article in the *Bee Journal*, No. 965, to say that I purposely expressed myself somewhat hypothetically. There is a certain danger in writing too definitely about new inventions, which have not been fully tested, but I fully *believe*, as I have already stated, that these sections *will* be a success. I may add that three or four years ago I had considerable experience with sections corresponding somewhat in *principle* with Mr. Lee's. The sections I tried were clumsily made by a village carpenter, and cost more than the ordinary V sections, but I was repaid by the extra amount of honey taken. The difficulty of having them made was my only reason for discontinuing the use of them.

I am glad to see the subject of bee-houses is again brought forward by a prominent Scotch bee-master. If hives are not crowded too much, they are invaluable for wintering and supering, though one hardly dares to venture the opinion in opposition to the majority of leading apiarians.—A. G. R., *Fonthill, East Grinstead, Sussex*.

WOODLEY'S NEW EXHIBITION CASES.

[996.] I should like, in the interest of all exhibitors, to draw their attention to this new and most useful invention to all exhibitors of comb honey.

I am a fairly large exhibitor, and on seeing Mr. A. D. Woodley's announcement of this new exhibition case in the *British Bee Journal*, I requested him to send me a sample.

I am very pleased to be able to say that the case bears out what Mr. Woodley said about it, and it is without doubt the most excellent of show or exhibition cases, not only for its clean and handsome appearance, but also for its cheapness, which places it within the reach of the humblest cottager, and also for the correctness of its fit for the sections, and what is much to be commended, its fair way of allowing the whole of the sections to be easily seen by the judge—the edge turned over being one quarter inch bare. With this case the tedious and time-wasting way of separate glazing with paper is done away with, and the result is a very handsome section either for exhibition or sale, and the thanks of the bee-keeping public are due to Mr. Woodley for his production.—H. W. WEST, *Bishop Waltham*.

BEE-FLORA.

[997.] In the *Bee Journal* for May 5th, page 198, describing my home-made bee-dress, it should have been a pair of soft leather pruning-gloves, and on the end of the gloves I have the top part of a thick *pair of woollen stockings* sown on fast.

I send you a small list of seeds, the flowers of which I notice my bees are very fond of, and that any poor cottager can buy cheap, and save his own seed yearly without more expense.

Wallflowers.—Pick the seed-pods when turning quite brown, dry them on paper indoors, and place when quite dry in paper bags. Sow in spring, about April. Treat all the following seeds same way.

Mignonette.—Pick off the seed-pods when you find the seed in the pods quite or nearly brown. Place them when gathered in an old jug or tea-pot till you have picked all the pods during the season; let them rot altogether, then wash in cold water to get the pulp away from the seed; rub all of it between the hands well, the seed will then sink to the bottom of the vessel. Dry on paper.

Borage.—The seed of this will sow itself and come up plentifully in the spring.

Forget-me-not.—Cut off the seed branches when turning a dark brown, put in a paper bag in a warm, dry place; when quite dry rub the seed out. They are rather small, black seeds. I sow my seed about June when ripe, but the spring answers for general purposes.

Poppies.—The heads should be cut when you can hear the seed rattling about in the heads when given a gentle shake. If the seeds do not come out freely, dry on a plate, or any other thing handy. Turn the heads upside down, the seed will then fall out. The large, flowering sorts of poppies I find are what the bees are the most fond of.

Canterbury Bells.—Treat the same as for poppies. Sow the seed thinly on fine soil in a warm, sheltered situation, early in the spring. Prick the plants out as for cabbage. When large enough plant out, one foot apart

each way, in good ground for flowering the following season. I could give many more sorts, but for a poor man with the fields around him the sorts here will be sufficient.

The best hive for a poor man, who has but very little time during the summer months to look to his bees, is a flat-topped straw skep with a straw super on the top. I do not myself really think the real country cottager will be ever got to understand the modern bar-frame hives. One countryman asked me how was he to put 'the blooming bees into they things?' Another one, who had his bees put into a bar-frame hive for him, put a lot of sacks all over the outside of the hives to keep them warm during winter.

It being a very fine day down here last Sunday week, I took a walk to a friend's garden. He told me he had had a swarm of bees, and I asked how he put the bees into his bar-frame hive. He said he got a man to help him to put them in. They carried the whole of the bar-frame hive with them up into a large tree, and shook them into the hive.—R. G., *Caerleon.*

COMB FOUNDATION.

[998.] I have used a large quantity of the wired foundation so highly spoken of by the writer of 'Useful Hints' and, I must confess, with good results, but there is a point in connexion with it which ought to be brought before the notice of the manufacturers, who evidently have never seen natural comb, as built by the bees, otherwise they would not go on wiring the foundation the wrong way up; it must be just as easy to wire it the right way as the wrong way, but perhaps they don't care which way so long as it sells. Bees *always* build their combs, with perpendicular walls, the strongest possible way, and the Americans, who want teaching better, always wire their foundation, so far as I have been able to find out, the other or weaker way.

Is there no one in this country who makes this wired foundation? if not it is high time there was. Are all our manufacturers asleep? Surely the tons of this foundation imported into this country ought to be sufficient to awaken them. But there is one thing I will give the Americans credit for, and that is, the excellency of their foundation; it seems to have a tenacity about it we don't get here. Much of our English foundation is far too heavy and soft, no wonder it breaks down. Why some of it is so soft it won't bear its own weight in hot weather, how can it be expected to bear the weight of the bees, &c. in the hive?—F. Boyes.

Royal Jelly.—It is a nutritious material which contains nitrogenous and hydro-carbonaceous material. It is doubtless a model food, and is supposed to be the same material that is fed to the queen when she is hardest at work laying. It is already digested by the worker bees, and so is all ready for absorption.—Prof. A. J. Cook, *Lansing, Mich.* (*Canadian Bee Journal*).

Query.

[999.] *Heather Honey.*—Will any reader kindly say in the next issue of the *Journal* what is the average weight of honey a good hive of bees might be expected to collect in one season from the heather, with favourable weather and abundance of heather?—J. J. W. C.

Echoes from the Hives.

Grantham, May 21st.—The season is very backward here, fruit-blossom only now at its best. Spring flowers are plentiful, but the weather, oh dear! bees can do nothing, feeding in most cases necessary to keep stocks well going. I hear of only one swarm this season in the neighbourhood, and that was found on a hedge, and it took off before it could be hived. Passing the notorious hostel, 'The Living Sign,' the other day, I notice it still holds its own as one of the wonders to explorers to Grantham, and certainly the bees were right merry there, and I am assured they rarely go inside the hotel to indulge.—R. R. G.

Swineshead, May 28th.—The cold, ungenial spring, with continued frosts, N.E. and N.W. winds, and temperature 1·41 deg. below the average for April, and the bitter and sudden storms lately, causing many a pollen-laden bee to drop in attempting to clear hedges, has seriously checked the breeding and caused a great fatality among old queens, prompting and encouraging robbing, very difficult to stop in large apiaries, so that it is only the fittest that survive; hence the utility of keeping young queens and strong colonies of bees. No surplus has yet been obtained even by Fen House Apiary with seventy acres of closely-planted orchards, one and a half acre of crocus, and many bulb flowers. Yet a skep amongst others bought of a cottager lately was very strong, and it had a large hole in the bottom of the floor-board, which was rotten and near breaking. During the last five years I have driven for cottagers and others over 220 skeps in the district ranging from Cliff's Heath, Sleaford, and Fen to sea-coast, and only met with one case of foul brood (four years since), caused by wet through a mouse-hole, which I bought to experiment with, and subsequently burnt it and boiled the honey it contained to feed to a separate stock in an old hive, both of which I was prepared to sacrifice, but it did them no harm. In this district they do not, as a rule, 'fad' with their bees.—Robert Thorpe.

North Leicestershire, May 30th.—Three really good days during the past three weeks, and that is all. The remaining days were either windy, wet, and snowy. The wind on and about the 20th instant destroyed the bees by the hundred, and stripped the currants and cherries of their bloom. The weather is still very cold, and matters get worse daily. With the bees themselves destruction of grubs and death from starvation seems the order of the day, and nothing but copious feeding keeps stocks from dwindling even at this time of the year. There is abundance of nectar if the bees could but get out. Apple-trees here are just beginning to bloom, and the maples and sycamores already show their clusters.—E. B.

Aboyne, Aberdeenshire, May 24th.—It is flattering to think that, notwithstanding the inclemency of our northern climate, we can, at least this season, boast of about as early swarms as you can in the south. We are well sheltered in the bosom of surrounding hills, with abundance of flowers and honey-producing shrubs, and far from the noisome smell of factories or other public works. About ten days ago, under the influence of a very hot sun, a bar-frame in my apiary threw a large swarm at an early hour, while on the same day, about noon, a straw skep of home construction followed suit. Both are doing well, as the loads of pollen by day and the strong hum by night seem amply to testify. I have heard much of the vaunted pretensions of Ligurians over the native bee, how they work late and early, how fast they breed, and how much honey they gather in the course of a season. I have had them now in my apiary for a considerable time, but I regret to say that I find them in no one point better, and in some points worse, than the hardy black (or brown) bee. I hope to be able to give a few more details of my experience with them in the course of the season.—W. S.

Lismore, May 27th.—The weather here for the past month has been, on the whole, very favourable for bees. I have not been very lucky with queens this spring. I lost one stock in the very early spring from queenlessness; another followed suit soon after. The latter swarmed last season, and had in autumn a fine young queen. Two stocks' swarms of last season next gave in, but so recently that I was able to unite them to other stocks. And now the queen of what was my best hive last year has given up, and is doing nothing; she was only a year and three-quarters old, and began to lay earliest of all this spring, so that when I left home on March 19th the hive was unusually strong; but on my return on May 5th I found scarcely any brood, and only bees to cover two bars. So my sixteen bar-hives are reduced to eleven 'effectives,' of

which three are supered—two very hard at work up above, the third just beginning operations. The remaining hives will be ready for supers in about a week or a fortnight. I fancy there 'is no accounting' for queens. Some of my most rapidly increasing stocks did not swarm last season, so I presume have old queens; and I have lost two stocks with young queens. Of five skeps, four are flourishing; one small stock has died out, queenlessness also. Robbing is the plague of my apiarian life. It was very bad with me last year, and I thought it was the fault of my 'condemned bees,' but this season I had no condemned bees, so I don't know what to blame. I notice that the robbers are *very* small bees, black and old-looking. I do not think any of my own hives have such small bees. The loss of a few stocks is perhaps a merciful dispensation. For I began last year with five stocks and three condemned lots; and at the end of the season I found the increase amounted to sixteen bar-frame hives, and five skeps. If I can manage my present lot of fifteen communities, it will be about as much as I can do. Can anyone explain how it was that the honey in the hive (which I found on January 31st tenantless, the bees having died out from queenlessness) was not granulated? The cold was extreme at night, and the door was fully open, with perforated zinc over a portion of the opening. The bars were almost all full of heather honey, with beautiful white sealing. The weather was so cold few bees were out, and there was scarcely a trace of robbing. The hive must have been empty some time, and I can't understand why the honey was not congealed.—F. W. C.

Mahon, Minorca, May 21st.—We are in full honey-flow since April 20th. So far the honey is exceeding white and beautiful. Have taken out capped honey for the extractor, and some 600 or 700 sections are rapidly being capped.—F. C. Andreu.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

R. H. B.—*Law on Bees.*—If bees swarmed on a neighbour's garden, and were removed by the owner, the latter could not be proceeded against except for trespass. The owner might, however, be prevented from entering to take away his bees. A swarm of bees flying from a person's hive would be considered his while he kept them in sight; if the owner lost sight of them then he could not claim them.

J.—*Bees.*—We are unable to discover in the bees forwarded any trace of the strain of Carniolan bees.

M. Whittle.—1. *Honey.*—The sample of honey was pure and of a good flavour. The grain of the honey appeared as if it had been pounded to give the honey a better colour. 2. *Wax.*—The wax has been forwarded to Mr. Hehner to be analysed.

J. J. W. C.—*Dried Pollen.*—The white hard substance is last year's pollen.

H. R.—*Queen Impregnation.*—If impregnation is delayed beyond the twenty-first day the queen will only lay drone eggs, although Berlepsch and Dzierzon both give examples of exceptions; in one case a queen being properly impregnated at thirty days and in another case forty-seven days. If your queens hatched on 5th April and 5th May do not lay yet, you should discard them and replace them with fertile ones, because if a queen has been properly impregnated she usually begins to lay worker-eggs about forty-eight hours after. We think the 'Kohler' system very good if properly carried out.

Inquirer.—1. *Fastening Foundation-strips in Bell-glass.*—Warm the bell-glass sufficiently to make the wax melt, and if the foundation is cut to the shape there will be no difficulty in making it adhere. 2. *Preventing Untinned Treacle Valve affecting Honey.*—If you dissolve propolis in spirits of wine you can varnish your treacle valve with it, or warm the valve and rub in some beeswax. 3. *Frames.*—Although the frames are better for storifying when they are completely filled, yours worked down to within half an inch of the bottom will do very well. If you wish the combs to fill the frames completely, tie two pieces of tape round the frames as in transferring, and then cut round the combs; they will drop down on to the bottom bar and will be completed by the bees and fastened to the top.

William Pascoe.—1. *Treatment of Bees.*—We are obliged to refer you for information on the treatment of bees to such works as *Modern Bee-keeping* and Cowan's *Guide Book*. 2. *Time of Supering.*—When the bees have swarmed, is *not* the right time place supers on the hive. The proper time for putting on supers is when the hive is full of bees and brood, when the weather is fine, and the honey yield abundant. It is no use specifying any date; putting on supers, which is virtually enlarging the hive, would be an injury rather than a help if placed on in cold and miserable weather, as it would tend to cool the hive when the heat should be economised. 3. *Old Combs.*—If the death of the bees has not been caused by any infectious disease the comb may be used again.

R. Douglas.—*Diseased Bees.*—Your bees are suffering from a disease known in Germany by the name of 'Maikrankheit,' as it usually appears in May. The distention is caused by the abdomen being filled with excreta which the bees have not been able to void. It is supposed to proceed from the pollen collected having been touched by frost, which is very prevalent in the early spring mornings. Salicylic acid in the syrup is recommended as a remedy and keeping the hive dry, and preventing any moisture accumulating inside.

H. P. Jones.—*Diseased Bees.*—See reply to R. Douglas above.

P. P. H.—The promiscuous use of an extractor in a district where foul brood is suspected is a very possible medium for the conveyance of foul brood. Too much caution cannot be observed in thoroughly cleansing it in its passage from one apiary to another.

J. Cole.—*Chilled Brood.*—The piece of comb forwarded was filled with chilled, not foul, brood. Chilled brood is caused by disturbing the hive at inopportune times, or by unsealing the honey-cells, or by giving the stock too much syrup, whereby the queen is stimulated to egg-laying, and more brood is produced than the bees can cover and give the requisite warmth to. In foul brood the caps of the sealed brood are indented and pierced; the cells contain a sticky, coffee-coloured substance, emitting a most disagreeable smell, perceivable at some distance from the hive.

H. B. and Beta.—The pieces of comb forwarded are cases of chilled brood. See reply to J. Cole above.

J. Wood and S. G. Field.—We do not sell swarms or anything in the shape of appliances. Please refer to our advertisement columns. You can get such swarms from most of the dealers in appliances.

W. Coxon.—It depends upon the wording of the schedule. If the class is for 1-lb. sections these certainly would be disqualified. If the wording was '*not exceeding a certain weight*' then they would be eligible.

T. S. B.—1. *Making the Best of Twelve Stocks in Skeps for Production of Honey.*—If you transfer at once, at the same uniting two lots in one hive, you will have six stocks which will do you service and (weather permitting) store honey for you. Six strong stocks are far better than twelve weak ones. 2. *Making up Stocks for Winter.*—1 lb. of bees on foundation will do no good. A swarm should weigh at least 3 lbs. 3. *Wax Foundation.*—To obtain wax in good condition for use, we should suggest that in place of your making it yourself you purchase it it from the recognised manufacturers.

Mayer.—1. *Keeping Ligurians Pure.*—As you say there are black bees, you can only attempt pure fertilisation by the plan described by Mr. Raynor. The nucleus should be made up with a comb or two of hatching brood with the drones and queen, and must be kept in a dark place until brought out for flight at a time when naturally flying drones would be at home. 2. *To Ligurianise the Black*

Stock, you had better remove the black queen and give the Ligurian to them, and let the Ligurians raise cells. Eight or nine days after removing the queen, make up your nuclei, giving each one or two queen-cells. 3. *The Signs of Fertilsation* are visible when the queen returns to the hive if you watch for her. 4. *Drone Comb.*—You may cut the drone comb right out, and if you like piece some worker comb into its place, secured by a few thorns or splinters; or if you wish simply to destroy the drones, cut off the projecting caps of the cells.

Show Announcements.

Giving Name and Address of Secretary, Date and Place of Show, Date of Closing Entries. Terms: Three Insertions and under, Two Shillings and Sixpence; additional insertions, Sixpence each. No charge made to Associations whose Shows are announced in our general Advertising Columns.

June 15, 16.—Wilts Agricultural Show. Rev. W. E. Burkitt, Secretary.

June 21-25.—Royal Counties' Agricultural Show at Reading.

June 23, 24.—Suffolk Agricultural Show at Bury St. Edmunds. Entries close June 6. J. Huckle, Secretary.

July 11-15.—Royal Agricultural Show at Newcastle-on-Tyne. Post entries to June 1st. J. Huckle, Kings Langley.

July 21.—Prescot Horticultural Show. R. Rugby, Secretary, Station Road, Prescot, Lancashire.

July 20-22.—Lincolnshire Agricultural Society at Spalding. Entries close July 4. R. R. Godfrey, Secretary.

July 26-28.—Gloucestershire Agricultural Show at Cheltenham. Entries close July 12. W. D. Slade, Sec.

July 26, 27.—Warwick Agricultural Society at Sutton Coldfield. J. N. Bower, Secretary.

July 27.—Bishops Waltham Show. (Hants and Isle of Wight Association.) H. W. West, Hon. Sec., Swanmore House, Bishops Waltham.

August 3-5.—Yorkshire Agricultural Society at York. Secretary, H. L. Rickards, Poole, near Leeds.

August 9, 10.—Irish Bee-keepers' Association at Salthill Gardens, near Dublin. Entries close August 2. Hon. Sec., Henry Chenevix, Blackrock, Dublin.

August 14.—Handbridge, Chester Horticultural Show. W. Little, Secretary, Eastgate Row, Chester.

August 24.—Lancaster Agricultural Show. W. Liddell, Secretary, Dale Street, Lancaster.

August 31-Sept. 3.—Royal Manchester and Liverpool Agricultural Show at Manchester. W. Lees McClure, Secretary, The Lathoms, Prescot, Lancashire.

Business Directory.

For the use of Manufacturers and Purchasers of Bee-keeping Appliances.

The Name and Address and Business of any Manufacturer will be inserted in this List, under one heading, for One Pound per annum. Additional headings, Five Shillings extra. Advertisers in 'The Bee Journal,' whose orders amount to Five Pounds per annum, will be inserted Free.

HIVES AND OTHER APPLIANCES.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
Appleton, H. M., 256A Hotwell Road, Bristol.
Baker, W. B., Muskham, Newark.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
British Bee-keepers' Stores, 23 Cornhill, E.C.
Burtt, E. J., Stroud Road, Gloucester.
Edey & Son, St. Neots.
Howard, J. H., Holme, Peterborough.
Hutchings, A. F., St. Mary Cray, Kent.
Meadham, M., Huntington, Hereford.
Meadows, W. P., Syston, Leicester.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
Stothard, G., Welwyn, Herts.
Webster, W. B., Wokingham.
Woodley, A. D., 26 Donnington Road, Reading.
Wren & Son, 139 High Street, Lowestoft.

HONEY MERCHANTS.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
Baker, W. B., Muskham, Newark.
Baldwin, S. J., Bromley, Kent.
British Bee-keepers' Stores, 23 Cornhill, E.C.
British Honey Co., Limited, 17 King William St., Strand.
Howard, J. H., Holme, Peterborough.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.

FOREIGN BEES AND QUEENS.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
Baker, W. B., Muskham, Newark.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
Benton, F., Munich, Germany.
Howard, J. H., Holme, Peterborough.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
Simmins, S., Rottingdean, near Brighton.

METAL ENDS.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
Baker, W. B., Muskham, Newark.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
British Bee-keepers' Stores, 23 Cornhill, E.C.
Lyon, F., 94 Harleyford Road, London, S.E.
Meadows, W. P., Syston, Leicester.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.

COMB FOUNDATION.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
British Bee-keepers' Stores, 23 Cornhill, E.C.
Howard, J. H., Holme, Peterborough.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
Stothard, G., Welwyn, Herts.

HONEY GLASS MERCHANTS.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
Pearson, F., Stockton Heath, Warrington.

ITALIAN BEES of the BROS. CIPPÀ,
BEE-KEEPERS,
BELLINZONA (Suisse Italien).

Successors of the old-established Bee Business of the late Professor A. MONA.

SEASON.	A Fertilised Queen with a Cluster of Bees.	Swarm of ½ kilogram.	Swarm of 1 kilogram.	Swarm of 1½ kilogram
	Francs.	Francs.	Francs.	
March and April	8	16.50	24	
1 to 15 May ...	7.50	15	22	
16 „ 31 „ ...	7.50	14	20.50	
1 „ 15 June ...	7	13	19	
16 „ 30 „ ...	6.50	12	17.50	
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16 „ 31 „ ...	5.50	10	14.50	
1 „ 15 Aug. ...	5	9.50	13.50	
16 „ 31 „ ...	5	9	12.50	
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16 „ 31 „ ...	4	8	11	14

Carriage not paid. A Queen arriving dead, if returned at once, will be replaced without charge. Terms, Cash. Be particular to give the exact Address and Name of the Station. Queens reared by selection. Five per cent discount on an order for 10 Queens or Colonies at a time; 10 per cent if 20 Queens are ordered; 15 per cent on 50; and 20 per cent on 100 Queens or Colonies ordered at one time. Write, if possible, in French or German. We have been acknowledged as the sole successors of the late A. Mona by the official Federal Gazette. See notice in *British Bee Journal* (page 424 of 9th Sept. 1886).

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BAR-FRAME HIVES, 7s 6d., 10s. 6d., 12s. 6d., and 17s. 6d. each. **Bar Frames** (ASSOCIATION STANDARD), Planed and Saw-cut for Foundation. Price, in the flat, 1s. per doz., 10s. 6d. per gross; put together, 1s. 6d. per doz., 15s. per gross.

Sectional Supers, from 2s. 6d. each.

Cylinder Honey Extractors, 32s. 6d., 27s. 6d., and 18s. 6d. each.

Feeders.—Regulating Bootle Feeder, 1s. 6d. each; 15s. per doz. Cooper's Venetian Feeder, 1s. 6d. each; 15s. per doz. Feeder on Simmins' principle, 2s. 6d. **Honey Jars**, from 12s. 6d. per gross.

ALL OTHER APPLIANCES AT MODERATE RATES.

Stocks of Bees and Swarms. Foreign Queens direct from Mr. FRANK BENTON. **Catalogue on Application.**

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WHITE FLINT GLASS HONEY JARS.

SPECIAL PRICES.

No. 1. No. 4. Screw Jar, including Cap & Cork. No. 5. Screw Jar, including Cap & Cork.

1-lb., 12/6 gross. 1-lb., 23/- gross. 1-lb., 23/6 gross.
2-lb., 20/6 ,, 2-lb., 33/- ,, 2 gross cases, 22/9
Five gross lots as follows:— per gross.
No. 1, 11/3 gross; No. 4, 21/-gross; No. 5, 21/6 gross, in gross cases, free on rail. Cases all free. Cash with Order.

GOODS BEST QUALITY. CATALOGUE POST FREE. A 2556

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MANIPULATE WITHOUT SMOKE!

WEBSTER'S FUMIGATOR

Entirely supersedes the Smoker, both in Simplicity and Effectiveness. No 'going out.' No tainting or soiling of combs. Always ready for use without any preparation. Can be carried in pocket.

With Bellows, 4s. 6d.; postage, 4½d.
Without Bellows, 3s.; postage, 3d.

Can be adjusted to any ordinary smoker bellows.

6 oz. Bottles of Agent—carbolic acid, oil of tar, and water, proportionably mixed—6d. each.

NOW READY.

WEBSTER'S SWIVEL FRAME-LIFTER

With this appliance, frames can be removed from hive. Examined on both sides and replaced without inverting, and with one hand only, leaving the other free to perform any manipulation, at the same time preventing the soiling of hands with propolis. 1s. 6d. each. Postage 3d.

Send for ILLUSTRATED CATALOGUE of all descriptions of Appliances. Post free on receipt of post-card.

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1st Prize, Silver Medal, Royal Counties' Agricultural Show.
Highest Award, Bronze Medal, Colonial and Indian Exhibition, for Bee Subjugators.
2nd Prize Bronze Medal, Colonial and Indian Exhibition, for useful Inventions introduced since 1883.
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THE CHAPMAN HONEY PLANT.

Strong Plants to flower this Season, 7s. 6d. per 100, 1s. per dozen. Free per Parcels Post.

BEE FLOWERS.

Six best kinds for Succession, large packets, free, 1s. 3d.
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12 choice and brilliant sorts, 1s. 3d. 24 ditto, ditto, 2s. 3d.

BEE PASTURAGE:

Dealing with the Propagation and Successful Cultivation of Honey and Pollen-producing Trees, Shrubs, and Plants.

Price One Shilling, post free.

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BRITISH BEE-KEEPERS' PRACTICAL NOTE BOOK. By THOMAS W. COWAN, F.G.S., F.R.M.S., &c. Crown 8vo, boards, 1s.; postage 1d. Indispensable for every Bee-keeper. Published by J. HUCKLE, Kings Langley; may also be obtained of all Hive-dealers

IRISH BEE-KEEPERS' ASSOCIATION.

A SHOW OF

Hives, Supers, Bee-Furniture, and Honey

Will be held at SALTHILL GARDENS, DUBLIN,
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PRIZES in all Departments open to general competition.

ADDITIONAL PRIZES in the Honey Department open, without entrance Fee, to Members only.

Full particulars on application to HENRY CHENEVIX, *Hon. Sec.*, Blackrock, Dublin.

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PRESIDENT: THE RIGHT HON. LORD WENLOCK.

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Will be held on THE KNAVESMIRE, YORK,
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The Entries close on SATURDAY, JUNE 25th.

Prize Lists and Forms of Entry for Stock, Bee Appliances, and Implements, will be forwarded on application to MARSHALL STEPHENSON, Secretary. 176

LAST DAY OF ENTRY, 6th JUNE.

BRITISH BEE-KEEPERS' ASSOCIATION.

EXHIBITION OF

BEES, HIVES, and HONEY,

In connexion with the Suffolk Agricultural Society's Exhibition,
To be held at BURY ST. EDMUNDS,
On THURSDAY and FRIDAY, JUNE 23rd and 24th, 1887.

Secretary: JOHN HUCKLE, Kings Langley.

C. T. OVERTON, Manufacturer of all kinds of Bee-keeping Appliances.

The COWAN HIVE and EXTRACTORS a Speciality.

THE following Goods are offered at a low price, for Cash only:—OVERTON'S IMPROVED FEEDER, 1/3 each, 12/0 doz. Best BINGHAM SMOKER, post free, 3/3. (This Smoker was awarded a Bronze Medal at the Colonial Exhibition.) CANDY for WINTER FEEDING: Sample, 1 lb., post free, 9*d.*; 1 lb., 6*d.* per lb.; 2 lbs., 5½*d.* per lb.; 10 lbs. 5¼*d.* per lb. METAL SCREW CAP BOTTLES, 26/6 per gross; 25/6 per gross in crate of 5 gross. BROOD FRAMES, Plain, in flat, 8/- per 100; Broad-Shoulder, 16/- per 100.

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OUR Second consignment of **FOUR BEE-WAY SECTIONS,** BINGHAM SMOKERS (7/6 each), and a variety of other goods just to hand. Among other new ideas in Hives, we beg to offer **EDEY'S DOUBLER, complete in two chambers, 10/6.** Single Parts — Bottom, 1/3; Body, 2/6; Metal Corner Frames in flat, 1/-; Dummy, 4*d.*; Water-proof Cover, 1/5; Invertible Crate, 2/6. In Flat—Complete Hive, 5/-; in lots of five, 23/9. If frames are wired and fitted with foundation, 5/- extra is charged: this is well worth the extra expense.

CARNIOLAN QUEENS, after June 7th, 8/-; Home Bred, as List, ENGLISH SWARMS, 12/6.

A full line of all other goods on hand, for instant delivery. See List, free.

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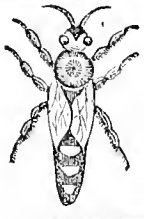

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THE BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, Cambridge Circus, W.C.'

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Editorial, Notices, &c.

IRISH BEE-KEEPING: PAST AND PRESENT.

Seven years ago, chiefly at the instigation, and largely at the expense, of the President and Hon. Secretary of the British Bee-keepers' Association, the Baroness Burdett-Coutts and the late Rev. H. R. Peel, that Society were induced to send a mission to Ireland with the purpose of stimulating bee-keepers to form themselves into associations, and of awakening the nation to the possibility of a new industry in their midst. Much judgment was displayed in the selection of two most able, experienced, and enthusiastic bee-masters to conduct this mission; these were Mr. C. N. Abbott, of Southall, and Mr. W. Carr, of Newton Heath, Manchester. The ground these gentlemen had to break up was fallow; their experiment had not been previously attempted, and many were the obstacles they had to overcome. Their mission occupied them about a month, and they were most favourably impressed with the capabilities of the country for the production of honey in large quantities. Perhaps we may not be wrong in our conjecture in attributing to the opinion formed by one of the gentlemen above mentioned during his sojourn, of his recently counselling one of his sons to locate himself in Ireland with a view of establishing a branch of his business for the supply of the growing demand for bee-appliances there.

Messrs. Abbott and Carr having fulfilled their mission, presented to the Association a very able, painstaking, and exhaustive report, which was given *in extenso* in the number of the *Bee Journal* for July 1881. It may be interesting at the present time to allude to this report, and thus to contrast the past and the present state of bee-keeping in Ireland.

The peregrinations of Messrs. Abbott and Carr extended over many hundreds of miles of country—through Munster, Leinster, and Ulster; they made their journeys on rail, car, and foot; and wherever they went they were filled with admiration of the wondrous floral beauty of the land, and the indisputable evidences it presented of its general suitability for bee-pasturage.

Notwithstanding these great advantages, they found a large portion of the country without bees, and the people, with a very few exceptions, in sad ignorance of their value. Excepting at Clonmel and Newtownards there were no evidences of attempts made to cultivate bees. Even where bees were kept, no attempts were made to attend to them scientifically, and the sulphur match at the end of the season was lighted for their destruction. The report states:—

'Bee-keeping in Ireland consists in providing swarms with ill-made skeps of sugar-loaf shape, made of soft straw that sinks with the accruing weight, sticks being thrust across (at any angle) from below the centre to near the crown. They are exceedingly rough both inside and out, and when stocked are set upon a stone or stool, and very little, if any, protection is given to them; and, as a consequence, they quickly become rotten, and the bees and their enemies find an easy way through them. In a few instances ekes were added to the hives to give them more room; but even with this addition we did not find a hive, other than those containing late swarms or queenless stocks, that could contain its population; and though the country was overflowing with honey, and the hives were full (?) of it, the bees were idly clustering about their homes, having nowhere to store a surplus if they gathered it. Not anywhere, save in Clonmel and Newtownards, did we see a hive surmounted with a super, or any means in operation by which bees could be deprived of their honey without their destruction; and, as a rule, the principle of driving bees, either as a means of artificial swarming or depriving, was unknown.'

The report concludes with these words:—

'Finally, we take leave to record our conviction that, with a fair knowledge of the science that governs the art, bee-farming would more than doubly increase the profits of agriculture, and smooth the way to comfortable independence to many who are now barely able to gain a livelihood in that beautiful but neglected island.'

The mission of these gentlemen has not been without result. Bee-keeping at the present day presents a very different aspect. Earnest men, having at heart the welfare of their fellow-countrymen, have not been neglectful of the advantages to be derived from the formation of Associations and the profits to be reaped from the practice of intelligent bee-keeping. From year to year we have noted the growth of Associations and the numerous well-conducted shows that have been held in various places in Ireland. Especially would we mention the efforts that have been made by the Irish Bee-keepers' Association, in Dublin, and the North-east of Ireland B. K. A., in Belfast, to sustain the interest that has been awakened in their respective districts. We have before us the Prize-sheet of the August show

to be held by the former Association at Salt Hill, near Dublin, together with a supplement relating to the arrangements for disposing of any of the honey unsold at the show, and also a circular calling upon the bee-keepers in Ireland to make an effort to popularise the bee-show, so that it may not only attract those for whose benefit it is more especially intended, but also others who 'are seeking an innocent means of recreation.' The Association evidently is earnest in its desire of making this show a success, and we hope that it may lead to most valuable results.

In sending forth their Annual Report, the Irish B. K. A. published also several well-written papers on the more prominent subjects of bee-keeping. These were contributed by some of our most advanced bee-keepers, both in Britain and in Ireland. There were several pages also devoted to the statistics of bee-keeping in Ireland, which had been compiled by order of the Government in Ireland. In this matter we must allow that our sister island has taken a step in advance of this country.

We have also before us the Annual Report of the North-east of Ireland B. K. A.; this Association, too, has followed the good example set it by the Irish B. K. A., and the Report contains several instructive and well-timed articles written by the Rev. H. W. Lett, W. E. Betts, W. J. Stanford, Arthur B. Johnston, and others. This Society announces that shows in connexion with their Association will be held in Belfast, Strabane, Banbridge, Dungannon, Lisburn, and Newtownards.

Great credit is due to the Hon. Secretaries of these Associations for their exertions in disseminating a knowledge of bee-keeping, and we hope they may see that their well-meant efforts will be abundantly successful not only in their own districts but throughout Ireland.

ROYAL COUNTIES AGRICULTURAL SHOW, READING.

We would remind our readers that entries for the great show of bees, hives, and honey, to be held at Reading, in connexion with the Royal Counties Agricultural Show on June 20–24th, will close on Saturday next. Under the united efforts of joint Committees of the Berks and Hants Association a liberal prize list has been prepared, and every inducement offered for a large and attractive show. Candidates for third-class certificates should not delay in sending their application by the above date.

A WORD OF CAUTION.

A singular document, purporting to be a prospectus of a Bee-keepers' Union, has been forwarded to us. It contains no names either of the promoters or the secretary; the name of the printer is also omitted. The document is rough in arrangement, slatternly in style, ungrammatical in construction. Glowing hopes are dangled before the bee-keeper's vision; but how they are to be realised we are 'lost in conjecture.' Like some cheap medicines which profess to be panaceas for all 'the ills that flesh is heir to,' this prospectus proposes to accomplish everything the bee-keeper can possibly require at little or no cost. We note the articles which provide for the defraying the expenses of the Council. We advise our readers to receive the statements of this prospectus with a large 'grain of salt,' and to exercise considerable caution before they part with their cash.

FOUL BROOD.

As foul brood is prevalent in various parts of the kingdom, we extract, for general benefit, from a leaflet issued by the Lancashire and Cheshire Bee-keepers' Association the directions sent forth to its members:—

'*Foul Brood.*—This is known to exist in our counties, therefore the committee, with the view of assisting bee-keepers in freeing themselves of this terrible pest, have had a remedy put up in bottles which the hon. secretary will forward to any bee-keeper on receipt of 9*d.* in stamps. The bottles contain an oz. of concentrated phenol; the following directions are on the label attached to the bottles:—"*Directions for use.*—First, add the contents of this bottle to one pint of water to make the diluted solution, then mix, with each pint of food, this small bottle, once filled, with the diluted solution." The ounce bottle of concentrated phenol, price 6*d.*, at 2 South John Street, Liverpool, or 9*d.*, sent per post to any address, is thus sufficient to give to bees with twenty pints of food. With this inexpensive remedy, so easily procurable, it is to be hoped all interested (and this includes every bee-keeper having even a single stock) will try to stamp out the malady. All infected combs should be burnt; and to transfer stocks to hives that have been painted inside and out can certainly do no harm, the paint to be dry before the stocks are transferred. Intending purchasers should be careful to inquire whether the disease exists in the district from which they may be negotiating for stocks.'

USEFUL HINTS.

Weather and Prospects.—The first week in June past, fruit bloom over, the hedges becoming white with hawthorn bloom, easterly winds, which have continued for eight weeks without intermission, still prevailing—cold and copious showers, almost frosty nights, hives full of bees and brood, extensive feeding every night, hives and section-racks all in readiness for swarms, white clover expected to bloom in a week or ten days:—such is our report on this 6th day of June, 1887, and yet our hopes of a honey yield, and a good one too, are not dashed yet. Our weather-wise country friends proclaim, 'No settled weather now before the 21st,' which can hardly mean a good honey year. Still we hope. Bees are in splendid condition where they have been well looked after, and all ready to give a good account of the honey when it comes. Moreover we have great promise of a bountiful harvest in other produce. The corn-crops are looking remarkably well. Never was there a better prospect for heavy hay-crops,—in fact, the whole country is looking magnificent, robed in emerald green, and begirt with many coloured wreaths of the sweetest-scented flowers. Sun! Sun!! is all we want to start our hymenopterous treasury on their summer raids upon the nectar-yielding blooms. The old saw, 'A salivaring June keeps *all* things in tune,' must apply to *bees* and *honey* as well as to other things, therefore we shall continue to anticipate the beautiful sight of well-filled, evenly-wrought, straight-sided, sweet-scented sections of choicest clover honey, since a month or six weeks of fine

weather will afford to those who are well prepared a bounteous harvest.

Foundation and Frames.—The wired foundation cut into sheets sufficiently large to fill Lee's patent standard-frames, passing well through the bottom bars, of which we spoke several weeks ago as having been ordered by Messrs. Neighbour from the American maker, has arrived, and several frames of it have been inserted in the midst of populous colonies in our apiary. These are being worked out to perfection, and in a short space of time will be entirely filled with brood. They are the most perfect combs we have yet seen, beautifully straight and without a flaw, attached to the sides of the frames all round and free from pasaage-ways through the combs. The same may be said of unwired foundation, inserted similarly in these frames, with half-inch top bars some time since, except that the combs are not quite so even on the surface as those on the wired foundation. From the first we had no doubt in our own mind of the ultimate success of this system of inserting foundation. The rapidity and ease with which the frames are put together and filled with foundation, together with the perfect combs resulting therefrom, require merely a trial in order to convince the most sceptical of the advantages of this plan over all others. In our experiments thus far there has been neither sagging nor breaking down of the foundation. Owing to the backwardness of the season, the cold weather, and the roominess of our hives, we have not been able at present to obtain the natural swarms which we intend to place upon these frames, and thus thoroughly to test the system, but with a change of weather we shall soon expect our usual six and seven pound swarms, which in hot weather will soon prove the substantiality or the contrary of this method. With half-inch top bars and W. B. C. metal ends we have no fear of the result, but we advise a nail to be driven through the centre of the top bar to prevent the foundation drawing out. We entirely sympathise with Mr. Boyes in his wish expressed in our last issue (998), p. 238, that this wired foundation could be turned out by our English makers of quality equal to the American, and we are not without hope that the wish may be gratified. We never could understand why the makers insert the wires the wrong way in the foundation, but such is undoubtedly the fact. Our experience, however, does not tally with that of Mr. Boyes when he states that 'bees *always* build their combs with perpendicular walls,' if by that he means with the cells in straight horizontal rows parallel to the top and bottom bars of the frames. We have plenty of combs built without foundation, or even starters, with the rows of cells ranging in various directions. No doubt the natural way of building comb, as a rule, is with horizontal rows of cells, but the American wired foundation compels a vertical arrangement of these straight rows instead of a horizontal one, inasmuch as the wires must hang vertically. But notwithstanding all this we find in actual practice that the bees draw out the combs with vertical rows of cells just as willingly and as quickly as with the horizontal, and we have not noticed any tendency to weakness in the combs thus built. During all the years we have used the American wired foundation in large quantity we have never experienced the breakage of a single comb built upon it. It is a patented article, made by Van Deusen & Sons, of New York County, United States of America; and we are in full accord with Mr. Boyes when he says that in view of the many tons of the foundation imported into this country our manufacturers must be asleep if they make no effort to produce an equally saleable and good article.

Surplus Boxes.—'When is the right time to put supers on a *swarm?*' is a question often asked. We reply that if zinc excluder is used between the brood and surplus compartments, it is best to super immediately the swarm is hived, confining the bees to as many frames only as they can cover, and placing them upon full sheets of foundation, giving more space as required. By this plan, if the honey-flow is abundant, work is immediately commenced in the supers. But if excluder-zinc is objected to, work must be well advanced below, and the queen laying freely, before the surplus cases are given, otherwise she will at once ascend into the supers and there deposit eggs. If after this long, cold, and moist season, we get a few weeks of bright, settled weather, swarms will be plentiful, and it behoves every bee-keeper to turn them to the best account. By no plan can this be done so well as by placing the swarm upon the parent stand, and pursuing the systems recommended in former 'Hints.'

Entrances and Shade.—As the heat increases, the entrances to the hives should be enlarged to the full width of the hive, and half an inch deep; in addition, it is well to raise the hive from the floor-board one-eighth of an inch behind, giving air all round. A great deal of unnecessary swarming takes place from want of bottom ventilation, which is especially required when colonies are working rapidly in section-cases. During hot weather shade for swarms is absolutely necessary, to prevent newly-built combs from collapsing. Here, again, bottom ventilation is most desirable and enables the bees to work with ease and comfort, and to dispense with the incessant fanning at the entrances, so often witnessed in badly-ventilated hives.

Setting up Swarms.—When placing swarms on their permanent stands the hives must stand perfectly horizontal, or level, as it is usually expressed. This can only be accomplished by the use of a spirit-level, which should be a *sine quâ non* in every apiary. If a hive is pitched a little too much to right or left, or to front or back, it is impossible for the bees to build straight combs. The force of gravity prevents. Hence arise nine-tenths of the complaints which reach our ears on this score. The only deviation from the horizontal allowable is a pitch of half an inch from back to front, which enables the bees to carry out refuse matter with greater ease than when the hive stands perfectly level.

Thus far had we written when our factotum appeared at the study window, hatless and coatless, to proclaim the arrival of our first swarm! A pure Italian colony, domiciled in an Eclectic hive—the only one amongst fifty—has distinguished itself by leading off with at least a 6-lb. swarm. The swarm has quickly settled in the centre of a thickly-foliaged fir, and clustered closely around its stem, happily at no greater distance than some six feet from the ground. Our pen is cast aside, a sheet is spread beneath the tree, and upon it is placed a roomy skep, resting against the stem, which holds it up in front. With carbolised goose-quill we now proceed to brush off the bees, which, falling upon and around the skep, immediately commence to hurry in, and in five minutes all have entered.

Dear readers, we pray you to excuse further prosy 'Hints,' on the plea of placing our first swarm on Lee's frames filled with Van Deusen wired foundation, of which we promise a full and particular account in future prosings.

HOW TO MAKE THE BEST OF THE HEATHER HONEY CROP.

I am asked by our friend who fills the chair in Tower Street to answer the query the number of which is represented by three nines [999] in last week's *Journal*, put by a correspondent with long initials.

As I sat down to comply it occurred to me that the whole question of making the most of the heather honey crop might be of interest, not only to our friend 'J. J. W. C.,' but to many more of our readers.

I have yet to see the sample of heather honey that can be extracted from the combs, except probably Cornish

heather, consequently it is advisable to get heather honey stored in sections; and what so toothsome or elegant as a well-filled heather honey section! On the contrary, no kind is better adapted for extracting than clover honey; and certainly there is nothing in the shape of run honey to compare with a real good sample of clover honey, with sufficient nectar from a general flora to give it a bright, gold colour, tastily put up in good white glass bottles. It is irresistible! With two such articles you are certain to get a good connexion, ready sales, and, at any rate, a fair profit. But the question before us is, How to raise them?

When you get your sections make sure that they are clean and well finished, and also strong, as they will get an extra amount of handling as you will see presently. Fill them with foundation on Mr. Corneil's plan, as illustrated in this *Journal* (p. 531), use a reversing crate, and if the weather is fine when you read this, they ought to be on, providing—that is always the chief factor in supering—providing your bees are ready; if they are not ready, putting on supers is worse than useless. Reverse the crate as soon as the large piece of comb is built down to meet the narrow strip, and make an effort to get as many sections built out with comb as you possibly can. I wish you to mark this point:—your chief aim must be *numbers of sections* built with few or no 'pop-holes.' It does not matter so much if the cells are not built out to their full depth providing the sections are well built out at the midrib and well fastened all round to bear the strain of extracting. Use vigilance and keep your bees comb-building and give as many crates of sections as you can get them in the humour to build while the flow of clover honey is on; and when that ceases take them all off, whether sealed or unsealed, and extract the whole lot. If there is a cold spell on after you have extracted, and you can give the empty sections to the bees to clear out, without getting more stings than you can endure, you may do so; it will improve the sections, but it entails labour, and probably pain.

The honey extracted from the sections is your article for bottling, and I venture to assert that nothing taken from the brood-nest combs can compare with it for appearance. Having secured your sections well filled with clean empty combs, you are ready for the heather honey flow. Do not extract from the brood-nest if it is possible to get your stocks to the heather with heavy combs without a breakdown. With this in view it is wisest to provide tough old combs for the brood-nest, although they are objectionable on other grounds. If you extract from the brood-nest, of course the bees will first fill it with heather honey before taking to the sections. But if you have extracted or not, put on the sections at once; and being provided with combs built with clover honey, the bees are thus in a position to commence storing the heather honey as fast as they can gather it.

By this arrangement, 'with favourable weather and abundance of heather,' and plenty of bees and proper attention—do not forget the two last items, friend 'J. J. W. C.'—you may get 200 sections of heather honey from one hive; and what is more, if you know where, get two shillings per section for them wholesale, if they are a thorough good sample.

. . . Do name the market, that is a dear good fellow. . . No! I have already given you the wrinkle how to get the sections. I am no honey factor, but only an—AMATEUR EXPERT.

Foreign.

DENMARK.

DANISH BEE-KEEPING, PAST AND PRESENT.

The changes that have taken place in Danish bee-keeping during the last twenty-five years are very considerable, and this is easily explained when we remember that it was about thirty years ago that Pastor Dzierzon, of Schlesien, invented the moveable comb hive.

The official returns of the number of hives in Denmark in 1861 have been carefully analysed by Baron Bretton, who was at that time one of our most skilful bee-keepers. According to these returns, our country had 80,000 colonies and in the previous year 40,000 had been destroyed. The returns were made on the 15th July, that is, after most of the swarms had issued so that the 80,000 may be taken as giving the greatest number of hives found in that year in Denmark. If we take the number in proportion to square miles and to 1000 inhabitants we find, according to Bretton's list for 1861, the following:—

	per square mile.*	per 1000 inhabitants.
Danish Islands ...	143	48
Jutland ...	70	50
Denmark ...	113	49
Schleswig ...	425	171
Holstein ...	489	140
Lauenburg ...	400	152
France ...	400	110
Hanover ...	900	327

The returns in 1881 showed in Denmark 186 per square mile and 65 per 1000 of population.

With this table in view the question arises: Is Denmark sufficiently stocked with bees, or will it support a far greater number of colonies than it at present possesses? The last part of this question we can decidedly answer with a Yes! Take, for instance, Hanover, which with almost the same condition as our country, has eight times as many hives per square mile and seven times as many in proportion to inhabitants, as we had in 1861. Holstein had three and a half times, and Schleswig three times as many as we, and yet there is no doubt that these two duchies might have supported a yet larger number. Our colonies in the next twenty years increased about sixty per cent in proportion to area, and thirty per cent to inhabitants, but have not nearly reached the number the country could support. I think at least four times as many hives could be kept.

It has been suggested that the more fertile tracts of a country were not so suitable for bee-keeping as those less fertile, and consequently less cultivated. This may be true, but if we compare Jutland with our own fertile islands we find it is just these islands that have the most colonies. We can explain this by assuming that no part of Denmark has a sufficient number of colonies, so that they would stand in more even proportion to the population than to the area. If we compare the neighbouring countries, although their conditions for bee-keeping are similar, the numbers of hives kept vary greatly. On an average we find provinces with a poor population, for instance the west of Jutland, and provinces in which the land is subdivided amongst many cottagers, as in Scotland, have the largest numbers of colonies, whilst those provinces where the estates and farms are large, despise the small income to be derived from bee-keeping.

Many skilful bee-keepers are working zealously in some of the provinces to spread a knowledge of bee-keeping, and this I think is the best way I know of to advance the pursuit. It would be good if the Government would properly acknowledge the importance of bee-keeping as a pursuit for cottagers and assist more in the future than it has hitherto done.

The introduction of modern methods of bee-keeping into Denmark has resulted in advancing the pursuit considerably, partly by increasing the number of colonies and partly by enabling the bee-keeper to realise a larger income from every single colony. Rational management, enabling the bee-keeper to take the surplus honey without destroying the bees, has gradually spread

* One Danish mile is equal to twenty English miles.

during the last twenty-five years, and consequently the number of colonies has increased. It is a pity that skeps and moveable comb hives are not separated in the official returns. However, I believe I am not far wrong when I say that of the 130,000 colonies found here in 1881, there were at least 20,000 in moveable comb hives.

If we bear in mind that the honey extractor has improved the product, a colony in a moveable comb hive we may reckon will make a return of fourteen shillings a-year whilst the destroyed skep would only produce seven shillings. This can be proved by the fact that the income produced now is much more than that in 1861. Then we reckoned 40,000 colonies destroyed equal to about 14,000*l.* a-year. Now we reckon 55,000 skeps destroyed besides 20,000 moveable hives giving a total of about 24,250*l.* I admit that this calculation is uncertain, inasmuch as we do not know the exact number of frame-hives, but my calculation is rather under than over the mark. I know that one of our hive-makers has to this date sold about 3000 such hives.

The present returns are not made at a favourable time, but as they are taken at the same time as those for cattle this evil is not likely to be remedied. If in future the Government could be induced to separate skeps from moveable comb hives in the returns, they would be of considerably more value in calculating the progress of bee-keeping in Denmark. The improved methods may quadruple the income of a colony, but modern bee-keeping requires both knowledge and labour. It is not sufficient to persuade the skeppist to purchase good hives; he must be taught how to manage them as well, or it is not impossible that the new method would be less remunerative than the old. It is not enough to secure more honey, it should also be of good quality so as to command a high price. I have shown that at present bee-keeping produces about 24,250*l.* a-year, but there is no doubt that with the same number of colonies more than double this amount could be secured if the management was prudent, which in most cases it is not. Every year thousands of colonies die because the bee-keeper has managed badly, and a still larger number from the same cause give a very poor return.

Bee-keeping is now with us a source of income to between twenty and thirty thousand labourers and their families, and might be considerably increased if a knowledge of the best methods was more widely spread. Practical bee-keepers can do much to help, and it would be good if the Government could be induced to help the associations to send out experts and pamphlets on bee-keeping.—Hans Ersley.

SILESIA.

On Pollen-Gathering, and Stimulative and Compulsory Feeding.

A great deal has been written on this subject. Pfarrer Deichert, Mr. Brauner, of Neudöberu, and others have given excellent advice on bee-pasture: and in No. 15 of the *Bienenzeitung*, of 1882, Tirpitz, of Mr. Wechselburg, called special attention to *Epilobium montanum* as a plant which is eagerly visited by bees.

Though bee-keepers cannot be reminded too often of the importance of the cultivation of honey plants, the weather unfortunately but too frequently prevents the bees from utilising them, as we have seen in the present year. This being the case, I have been endeavouring during the last few years to prevent as much as possible the disastrous visits of bees to the first flowers which make their appearance in spring, viz., the hazel (*Corylus Avellana*) and the alder (*Alnus glutinosa*), and to supply colonies with pollen inside the hive.

I collect the pollen and give it to the bees in the following manner: As soon as the catkins are so far developed as to open on sunshiny days in February and March, when the pollen begins to discharge, I engage a number of women and children to pick the catkins which I have spread out loosely on sieves, such as are used for separating corn from chaff, or on ventilating windows, &c., and of these I place as many as a dozen, one above another, on a heated stove, or in a very warm room.

Between every two sieves or ventilators I place two pieces of wood, in order that the catkins may not be pressed together. Under the lowest sieve a large sheet of smooth paste-board is put for the pollen which falls through to collect upon; from this it can be swept off easily.

When the temperature rises to about 20° R. (77° Fahrenheit), or a few degrees higher, the catkins soon open. As soon as they do so, the top sieve or ventilator with the catkins on it, is carefully taken down and placed on a large sheet of paper, previously spread out on a table; the open catkins are then shaken up with the hand, when the pollen is deposited on the paper. The remaining sieves are treated in the same manner. But as the catkins are not deprived of all their pollen the first time they are stirred up, the sieves should be replaced and exposed to the heat of the stove a second time, but the order should be reversed, so that the sieve which was first at the top is now at the bottom. A few moments afterwards the shaking out of the pollen is repeated. Even after the catkins have been shaken repeatedly they should not be thrown away, but be carefully preserved in a dry and calm spot, where they must be turned over frequently, in order that they may not become heated or otherwise spoilt, which happens very quickly. When afterwards a sunshiny and calm day occurs allowing the bees to fly out, these catkins are spread out in front of the hives on a cloth, a door, or other contrivance; it is a pleasure to watch the bees crowding indefatigably among the catkins in order to extract the last grain of pollen.

Bees are greatly assisted in their search for pollen by the catkins being shaken up frequently. They may be placed before the bees during a good many days, but should be kept from getting wet. When at last all the pollen has been removed from the catkins they may be treated with boiling water, and the liquid be given to the cattle to drink.

In this manner bees are kept from starting on excursions which would prove disastrous to them, more especially if water be given them at the same time.

Although it may appear difficult and hardly worth the trouble to procure this beautiful yellow pollen in the manner indicated, yet in reality it is both easy and remunerative.

I am paying here 25d. (3*d.*) for a casket (½ bushel) of catkins, and at this rate a child can easily earn 6*d.*, although hazel trees are not plentiful here, and the alder catkins have to be collected in the neighbouring district; a basket of these catkins sometimes yields ½ lb. of pure pollen. Whoever has an opportunity should also have catkins collected later in May from *Pinus silvestris*, in order to procure a supply of pollen.

When the weather is still unfavourable to breeding on an extensive scale, I give this pollen to the bees on small pieces of comb which I place on the alighting board near the entrance of the hive. I take an old comb, and with a sharp knife, previously dipped into water, I cut through the cells half-way down: I then warm thin pieces of wood or cardboard, and place the cells upon them, where they soon get fixed. Into these cells I loosely scatter the pollen, which is first passed through a good sieve. If the comb used for this purpose is quite free from the smell of honey, there need be no fear of robbery. But care should be taken that every colony is liberally supplied when the first distribution of pollen is made in spring. The bees set to work very eagerly to make pellets, the edges of the cells affording them a good support. The trouble of fixing the pieces of comb is avoided if a piece of an

artificial comb is used for shaking the pollen into. When the weather permits of opening the hives frequently, and encouragement can be given to extensive breeding, the pollen is placed inside the hive, where the bees accept it just as eagerly; a special feeding apparatus is not necessary, as the portion of the comb which remains after the cells have been cut away halfway down may be used for this purpose. If a comb with cells of normal depth be filled with pollen, the latter is moistened with saliva by the bees, and gradually becomes hard, so that it can no longer be made into pellets. When all the pollen collected has been consumed by the bees before the state of the weather allows them to fly out, they may be supplied with flour in the manner I have described; it will likewise be accepted now, and thus the question asked by the late Baron von Berlepsch, as to feeding bees with flour in the hive, may be considered as solved.—A. GRUNERT, *Peiskerwitz, near Kl. Bresa, Silesia.*

FRANCE.

Those of our readers who have followed the reports which we have been giving from time to time upon the progress of apiculture in France, will doubtless have perceived that on that side of the Channel, no less than on this, bee-keepers have been for some time past greatly preoccupied with the growing necessity of finding increased facilities, beyond those now existing, for the ready disposal of their produce. Although it may be added that it is not only of late that this necessity has made itself felt, yet it is safe for us to say that it has become considerably more accentuated ever since our 'British Honey Company, Limited,' has been established among us; in fact, our *confrères* have been, ever since that event took place, seriously considering the advisability, or otherwise, of starting some such channel, and upon such a basis as would best meet the special needs of their requirements.

Accordingly, suggestions were more than once solicited from the bee-keeping community by our contemporary the *Apiculteur* of Paris, and now in its last number we have an outline of the constitution of an Association or Syndicate as, it is thought, might probably commend itself to the bee-keeping community of France.

We do not purpose, however, placing before our readers every point which, according to the programme before us, this 'Syndicat des Producteurs Apicols' of France would differ, in its intents and purposes, from those of our 'British Honey Company,' as they are somewhat numerous, and necessarily so, in view of the fact that this French 'Syndicat' would practically deal in everything connected with apiculture. However, our purpose here will be served if we mention one or two points which are most striking, and mostly directed to the increase of facilities for the disposal of honey. Thus, Clause 2, for instance, suggests the adoption of special hand-barrows which would perambulate the streets of Paris selling honey in attractive recipients, the shape and design of the barrow, as well as those of the pots and the labels, to be protected from becoming common property by registration and otherwise. As the Syndicate would deal only in honey of good quality, it is anticipated that such a course would soon become a most effective mode of disposing of a great deal of honey.

According to Clause 15, the head office of the Syndicate would be established in Paris, where it is desired that further suggestions and provisional adhesions be addressed.

Clause 10 provides for a meeting of the Board of Management at least once in every six months, and suggests the 15th of July as the date for holding the general annual meeting of its members.

Clause 6 states that the annual subscription to membership would be fixed at five francs per annum, whilst life-membership will be secured by the payment of fifty francs. Members purchasing from the Syndicate would be entitled to 5 per cent discount.

Should this project eventually take a practical form we will refer to it again at some future opportunity.

ASSOCIATIONS.

SUFFOLK AGRICULTURAL SHOW.

BURY ST. EDMUNDS.

Owing to the lateness of the season only a small quantity of honey has been entered for the Bury St. Edmunds Show, to be held on the 23rd inst. Bee-keepers having last year's produce on hand will do well to enter the same without delay. Address, J. Huckle, King's Langley.

LANCASHIRE AND CHESHIRE BEE-KEEPERS' ASSOCIATION.

On Friday evening, May 20th, a lecture was delivered in the Market Hall Coffee Tavern, Lancaster, under the auspices of the Lancashire and Cheshire Bee-keepers' Association, by Mr. W. B. Webster, of Wokingham, an expert of the British Bee-keepers' Association, on 'Bees and Bee-keeping.' There was not a very large attendance. The Rev. J. Bone presided; and amongst others present, were Mr. Wm. Lees McClure, of Prescot (hon. sec. of the Lancashire and Cheshire Bee-keepers' Association), Messrs. Wm. Liddell, J. Hatch, T. Stirzaker, J. Warbrick, Gooch, Bailey, Drinkall, Taylor, Redmayne, and others.

The Chairman having introduced Mr. Webster, the Lecturer said he wished to give them a little information as to how they could profitably keep bees, and also keep them more humanely than had hitherto been the custom. In a hive, as most of them knew, there were three kinds of bees at certain seasons, and two at others. There was what was called the queen-bee, which was not really the queen, but simply the mother bee, the only one that bred in the hive. Then there was the drone, which was larger than any bee in the hive, and the worker, which built the combs and collected the honey and pollen with which to feed the young bees. The queen-bee laid an egg, and in twenty-one days it became a worker-bee. The same egg that produced a worker-bee would, by different feeding, produce a queen-bee in sixteen days. The queen afterwards laid another egg, which was what might be called an unfertilised one, and in twenty-five days it turned into a drone. When the services of the drones were no longer required in a hive, the other bees threw them out. Queen-bees lived four or five years, but modern bee-keepers only allowed them to remain in their hives two or three years, which was as long as they were considered useful. After exhibiting a queen and drone bee, and the cells in which the different bees were hatched, the lecturer went on to describe and condemn the old-fashioned mode of keeping bees. When a swarm took place, after the bees had been got into the hive they should be removed at once to the place where the hive was intended to remain, instead of leaving it near the place where the bees originally settled. That would prevent, in many instances, absconding swarms. The old method of obtaining the honey from a hive by means of sulphur, which generally had the effect of destroying the bees, was described as inhuman and a crime, because it was unnecessary to kill the bees to get the honey. They could take the honey from any hive in a much easier way than by killing the bees. If they had only a common straw skep, the best way was to cut a round hole, three inches in diameter, in the top, puffing a little smoke into the hive, and stopping up the

entrance. Then they could place a super or crate of sections on the top of the original hive, removing the plug from the entrance, and the bees, finding there was no furniture in the upper one, would begin to fill it with honey. They would by that means get 14lbs. or 15lbs. of honey from the top one, and leave the bees what they had collected in the bottom one to feed on. By that means they could make a profit of a guinea each year from an ordinary hive, and still have the same stock as they commenced with. The next step in bee-keeping was what was called sectional supering. A box fitted with a round hole at the bottom was fixed over the hole in the top of the hive. A piece of beeswax was placed in the section, and the bees built their comb on that foundation, and on the same lines as the beeswax ran. Then they had between each row a piece of zinc, and the bees built until their backs came in contact with the zinc, and the honey was thus finished off flush. By that means he (the lecturer) obtained a profit of 2*l.* 9*s.* from a hive last year. The frame-hive was next described, by the use of which the owner had perfect control over the bees. The method adopted to make the bees build in the frames was illustrated, and also how to make the hive larger as the bees filled the frames already in. Another advantage was that they could always see whether the bees had plenty to eat, or were starving. They could also see whether a hive was queenless, and thus going to the bad, and remedy it by giving the bees a new queen. If a hive had lost its queen the bees had power to raise another from an egg which would otherwise have produced a worker, by feeding the egg in a special way, though the same process of feeding would have no effect upon an egg which produced a drone. Then if they had frame hives they could see whether their stocks were strong or weak. If they found they had two weak stocks in the winter it was always best to put them together and make one strong colony. Proceeding to speak of subjugating bees, the lecturer said they were not afraid of mankind, but they were irritated by a noise, and thoroughly frightened by tobacco smoke or the fumes of carbolic acid. If they had an ordinary skep hive of bees, and they wanted to take them out into another similar one, the best way was to puff a little carbolic acid into the entrance of the hive by means of a smoker, and then tap the outside of the hive smartly. The tapping and the smoke thoroughly disorganised the bees, and they proceeded to gorge themselves with honey, and almost forgot to sting. Then the hive could be turned upside down, and a few more puffs of carbolic acid would keep the bees from getting out. The second hive could then be fixed or held on the edge of the original one, and the bees would begin to crawl rapidly into it, because it was dark, and when the last bee had got into the new hive, it could be placed on the stand and the honey taken from the first one, without the loss of a single bee. After describing and illustrating the bar-frame hives, the lecturer said that the only means of preventing bees swarming was by keeping the hive a little too big for them. This could be done by taking out the frames filled with honey, and putting empty ones in their place. There was a growing and increasing demand for honey, which was not only very nutritious but also contained medicinal properties, and therefore bee-keepers should endeavour to get as much honey as they could from their stock. There was another aspect of bee-keeping, namely, the fertilisation of flowers. The bees, in collecting honey, conveyed the pollen from the male to the female flowers, and thus fertilisation took place, and seed was formed. The formation of seed was an important factor in clover, and it was therefore to the advantage of farmers to keep bees if only to produce seed by fertilisation, because seed meant weight. Farmers by keeping bees could increase their income considerably, because they got better hay by their means, and had also the profit from the honey. He (the lecturer) did not see how any person could keep bees without them returning their owner a certain amount of profit, if they attended to them as they deserved. The more attention they devoted to bees the better they paid. Of course they must not interfere too much with them. Once a-week was quite often enough to extract honey from the hives, because taking the honey caused a commotion in the hive and interfered with the work of the bees. Many people commenced bee-keeping and found they were out of pocket. That was not the fault of the bees, but of the owner. The reason probably was because they did not attend to them properly. People who began bee-keeping should only have one hive at first, and master that before they got any more. In conclusion the lecturer spoke of the advantages to be derived from membership in the Lancashire and Cheshire Bee-keepers' Association. At the Indian and Colonial Exhibition he (the lecturer) was literally astonished at the exhibition of honey sent by the Association. People now knew that Lancashire and Cheshire could produce better honey than any other part of England. There was no honey in the exhibition that could touch that sent by the Lancashire and Cheshire Association. Therefore it was to every bee-keeper's advantage to belong to the Association.

In answer to Mr. Liddell, the lecturer described the method of doubling, the object of which was to get a very strong colony of bees just at the time honey was coming in. The same gentleman also asked a question respecting non-swarming bees, and Mr. Webster replied that it was impossible to prevent swarming altogether. They might retard it in the way he had already described, but as swarming was natural they could not altogether prevent it. In answer to further questions, the way to deal with diseased bees and the method of introducing a new queen into a hive were described. The latter method was as follows:—When a queen had got too old the frames in the hive must be lifted out in the day time until the queen was discovered, and then it must be removed. Then a new queen being in readiness must be kept in a box without food for some time, and at night, when all was quiet, and the fierce sentinel bees on guard at the entrance, the covering of the hive must be raised at the corner furthest from the entrance, and the queen-bee inserted, a little smoke being puffed into the hive at the same moment. The queen-bee being hungry would call for food, and the young bees round about, who were always located at the point furthest from the entrance, would commence to feed the queen; and if once the bees could be induced to feed the stranger queen she would be accepted. By this means a new queen could be introduced forty times out of fifty without being killed, and was much superior to the old method of caging the queen when putting it into the hive.

The discussion afterwards became general, and various matters of detail respecting bee-keeping were talked about by those present, and at the close a hearty vote of thanks was passed to the lecturer, a like compliment being paid to the Chairman for presiding.

Swarms in Scotland.—Mr. David Malcolm, residing at Ormisten, had a fine swarm of bees on Tuesday, 24th May. Mr. Johnstone, Rose Cottage, has since had a cast from one or two of his fine hives. There was a swarm of bees at East Hopes on 31st May. Mr. T. Williamson, Letham House, had a swarm of bees on Tuesday, 31st ult., which is the first recorded in this neighbourhood. On Wednesday, John Dow, joiner, Salten, had a good swarm. Mr. David Taylor, Hardgate Street, Haddington, also reports a swarm on Wednesday. Mr. Duncan Robertson, Samuelston Mains, writes:—'As a favourable sign of the season, I beg to report that I got a very fine swarm of bees at noon on Wednesday, 1st June. I have not for some years seen the old hives so strong as they are this season, which I take as indicating a fruitful season.'

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *King's Langley, Herts (see 2nd page of Advertisements).*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

A BEE TOUR THROUGH LANCASHIRE AND NORTHUMBERLAND.

[1000.] Receiving instructions from the British B.K.A., I commenced my journey through the above counties on the 20th ult. After a succession of small mishaps, such as missing an important train, leaving my hat to take care of itself on a journey to Scotland, the find being no doubt greatly appreciated by some canny Scot,—I arrived in Lancaster just in time to step upon the platform,—train arrived at 7 p.m., lecture advertised at same hour, so needs must, &c. I was bound to dismiss all thoughts of dinner until I had finished my discourse. Messrs. McClure and Liddell were in a great fright at my late arrival, but everything passed off satisfactorily, when, after adjourning to the Counties' Hotel with some kindred bee-keeping spirits and refreshing the inner man, I spent an hour in very pleasant company. The next morning was spent visiting the apiaries of the district, the condition of most of the colonies was grand, all hives in a more forward condition than in the south, vegetation of all sorts being quite a week earlier than here, in Berks. Saturday I started for Poulton-le-Fylde, here the bar-frame hive was well understood by a few, nearly all the hives being in good condition, but scarcely as forward as those at Lancaster. There are here several gentlemen, who will, without doubt, make excellent bee-keepers. I next visited Blackpool, being driven there by a gentleman who takes considerable interest in bee-keeping. The wind of the previous Friday had played sad havoc with the tender spring leaves of the trees, and instead of bright green their foliage was brown as in autumn. Monday afternoon, in company with Messrs. McClure and W. B. Carr, I attended a meeting of the Lancashire and Cheshire B.K.A. A subject of great interest was brought forward; recent advices from isolated parts had revealed the fact of the existence of 'foul brood.' Mr. McClure, in his usual energetic manner, obtained the sanction of the committee to 'go in' for a good supply of phenol and carbolic soap: these are now being distributed to those who require it. I trust the committee's efforts will be crowned with success. This is a good lesson for some of our sleepy County Associations. Tuesday morning Mr. McClure and myself unearthed a properly constructed Canadian (?) winter cellar; this subject will form such an object of interest that I purpose treating it in a separate letter, of course with Mr. Editor's permission. A hurried good-bye, and I was off to Morpeth, Northumberland. What a ride! Smoke, coal-dust, chemical factories, iron-works, myriads of high chimney-shafts, each belching forth its volumes of black sulphurous smoke, until I arrived in Yorkshire; here we rushed through the station sacred to 'Apifuge' and hut-tites. I think this was the first pretty spot that I had seen since leaving Lancashire. Arriving at Newcastle in a drizzling rain, I thought that if there was an uninviting spot to locate a bee-keeper in England, it is Newcastle—it's black, that is all the description I can give of it. Arriving at Morpeth I was met at the station by Mr. Scholield, the organizer of the expedition, and 'placing my legs under his mahogany,' I was 'at home' in fact with Mr. and Mrs. Schofield, and of course with the baby you could not feel otherwise. A lecture very well attended concluded the day's programme. The next morning was too wet and cold to do anything with the bees.—W. B. WEBSTER, *Wokingham, Berks.*

APIFUGE.

[1001.] Being a novice in bee-keeping, and very desirous not only to avoid the inconvenience of stings, but to manipulate my bees with as little discomfort to them as to myself, I determined to try the far-famed 'apifuge.' The clumsy veil and gloves, and the still more barbarous practice of smoking the bees, have always been to me most objectionable, apart from the irritation caused in the hive by the process of smoking, to say nothing of the loss of time and strength on the part of the bees in loading themselves with honey, which has afterwards to be disgorged before they can settle down again to their arduous duties. I accordingly tried the 'apifuge,' and was perfectly delighted with the result. The effect upon my bees was simply charming, not one attempting to sting me. A few crawled affectionately over my fingers, and seemed to express their gratitude for the discontinuance of their enemy the smoke. Nor was there any agitation in the hive during the peaceful manipulation. But strange to say, a day or two after using the 'apifuge,' there appeared on my hands and neck, where the bee-soother had been applied, three or four irritable bumps, red and swollen. It at once occurred to me, has the apifuge caused this? but this suggestion I sought immediately to dismiss from my mind, and should have thought no more about it had it not again occurred. The next time an examination of the hive was necessary, I handed the operation over to my nephew, who after duly fortifying himself with 'apifuge,' proceeded to manipulate the bees, and with the same peaceful effect upon them, not a single bee exhibiting his temper or attempting to sting. But, strange to say, the day following similar red bumps appeared on *his* hands and neck, causing the same itching and irritation I had experienced. Can the 'apifuge' be the cause of this? is a powerful query still resting upon our minds. Will any of my fellow-bee-keepers who have used 'apifuge' kindly communicate through your columns if a similar suffering has resulted from its use. It would be a grievous loss if so valuable an addition to apiarian appliances should be rendered objectionable by some powerful irritant contained in its composition.—E. MUSGROVE, *Sidcup, Kent.*

[We are informed that there has been a large demand for the 'apifuge' since its introduction to the public, a considerable number of bee-keepers must therefore have made trial of it. We should be glad to hear from such if they are able to confirm, or otherwise, the experiences of our correspondent. We have experimented with it on several occasions, but we have not noticed any such results.—ED.]

BEE FLORA.

[1002.] Can you afford space for me to speak a few words to the public? It is in reference to my letter which appeared in *B. B. Journal* for May 26th, 1887, p. 227, No. 982. I fear very many of our bee-keeping friends will feel somewhat disappointed in the long delay which must elapse before I can send cuttings and seed to all my applicants; but when I tell them that the applications are so numerous that letters arrive nearly a hundred at a time, and considering I have to be at my work from 6 a.m. until 5.30 p.m., they will then be able to realise the delay which must occur in some cases, but I am taking them in rotation as they arrive as near as I can. But I feel bound to lay those aside for a few days which ask for a reply, in order to get those off which ask for

no particulars, as the latter are very much in a majority. I also fear I have left many of our friends in doubt respecting the way in which I described the Nepeta Mussini. When I say it only grows to 6 in. high I speak of its habits of growth, as it does not stand upright, or it would be about 2 ft. high; it is now coming nicely into bloom, and I find my bees are quite aware of it also. I hope this notice will not prevent those who intend to write for cuttings and seed from doing so, as I shall be very pleased to keep on attending to them until I have completely executed my orders. If cuttings and seed fail I will communicate again.

I am very pleased to say that all my bees are doing very well indeed, considering the unsuitable weather we have had for them. There are very many friends who have been kind enough to send me some seed of various kinds. They are too numerous for me to write to privately, so I beg to take this opportunity of thanking them for the same. I will do my best to test their value, when I will, if circumstances permit, report upon the same.—C. H. W., *Aylesford, Maidstone.*

AGE OF WORKER-BEES.

[1003.] In your issue of the 2nd inst. I see (990) 'C. C. James' still believes he has bees two years old. I have proved to my own satisfaction that bees do not exist much longer than eight months, including the winter season; in summer time they do not exist nearly so long. I have a stock with black queen now hatching about five per cent of yellow-banded bees, which is open to the inspection of any one interested, and which confirms your foot-note to 'C. C. J.'s' letter.—NUCLEUS, *Betley, near Crewe.*

NOTES BY THE WAY.

[1004.] So Mr. Boyes has plenty of common sense. Of course he has. He says black bees are brown, American manufacturers have never seen natural comb as built by the bees, as they wire their foundation the wrong way up, as *his* bees always build their combs with perpendicular walls (like a factory chimney, I suppose). Surely 'F. B.' is, like our English foundation, heavy, and during the two or three warm days has naturally given way.

Experts are in hot water, and well they may be, seeing the expert has closed up and supered a stock of bees belonging to a reverend gentleman close by.

What to gather we should like to be told, as our bees require feeding every night during this weather. Hailstones, we presume.—APPLE DUMPLING, *Kent.*

BEES AND RIPE FRUIT. (963.)

[1005.] Allow me, Mr. Editor, as a bee-keeper and fruit-grower, to endorse Mr. Webster's assertion, and to place it on record that bees can, and did undoubtedly, pierce the skins of sound, ripe peaches, and to a less extent plums, with us, and to a serious extent, last year.

I may here remark, and with all deferential respect for your opinion, Mr. Editor, to the contrary, that no 'wasp-prepare-the-way theory' can be admitted in our case, for the simple reason that there was not a single wasp about at the time, and that the first peaches attacked were under glass. Later on in the season they attacked peaches and plums on the walls to an alarming extent. The latter fruit was very plentiful last year, and cracked very much after the showers, as plums always do if they get the rain on them during the ripening process. I am open to the conviction that it may have been the juice oozing from the cracked plums that was the inviting attraction to the bees, and which whetted their appetites for a further onslaught of the sound fruit of peaches on the walls. But I am at a loss to understand why they should have attacked the peaches under glass in the first instance.

As a bee-keeper of several years, and a fruit-grower of longer standing, I must confess that last year was the first time I have seen bees damage fruit to any extent worth speaking of. I believe I drew the attention of our much-respected Rector and bee-Mentor (the Rev. F. G. Jenyns) to the fact of the bees damaging the fruit in such wholesale manner. His bees shared in the treat which our orchard plums provided, for they winged their flight Rectory-wards thick and fast.—J. KIPLING *Knebworth.*

POLLEN-MASSES.

[1006.] Can you tell me what the substance is which grows on the heads of the enclosed bees? I saw several in two black stocks which I examined to-day, and also in one Ligurian stock. It looks beautiful under the microscope, and the bees are able to move the substance about. An answer in the *Journal* will oblige—T. W. JONES.

[The substance is not a growth from the head of the bee. The material is a pollen mass from an orchid, which has stuck to the forehead of the bee. The mass had been dragged to pieces, and so used by the bee in the fertilisation of other blooms. See Darwin's *Fertilisation of Orchids*, p. 34. This excrescence has frequently been considered the effect of disease. Dzierzon, in his *Rational Bee-keeping*, in his chapter on 'Diseases of Bees' (p. 279), says:—'The horn or tuft, formerly reckoned among bee-diseases, which appears after the fruit-bloom, deserves at least to be mentioned as a curiosity. Professor Theodor von Siebold has proved, in the *Bienenzeitung*, that the yellow or dark-green tufts showing on the foreheads of individual bees are not a fungoid growth at all, but are the very elastic pollinia of certain orchids that are left sticking to the bees.'—ED.]

Echoes from the Hives.

Weybridge, May 29.—I had a fine swarm on May 28th. I find bees generally late.—W. LEDGER.

Carlisle, June 2nd.—I had yesterday a fine swarm, which I believe is about the first in this district.—JOHN CLAY STEDMAN.

Harborne, June 6th.—The long-looked-for fine weather has come at last, bees working grandly, the sweat of the bees drop from the flight-boards in the early morning. What a difference from three days ago! Feeding every night to keep stocks alive, bees expelling mature as well as immature drones, no wonder a bee said as he entered the hive, 'There is no place like "comb" when the weather is like this.'—H. SANDS.

Goole, June 2nd.—The late month has been a very cold one indeed, and our bees have not been able to do much work. Fruit trees began to open their bloom about the 9th, but the weather was so cold that very few bees left their hives in search of the precious nectar, and we have had very few fine, warm days since, so we have given up all hopes of any surplus until the clover blooms. I noticed the first drone flying yesterday. All our hives but two are strong in bees but have no stores, so have kept the queen breeding by gentle feeding. The two weak stocks we intend to unite, and I would ask if it would be best to unite at once, or wait until just before the clover blooms, and then add supers at the same time; also is the sample of American cloth suitable for quilts?—A. WOODHEAD.

[Unite without delay, and if the weather should once more become unseasonable, feed gently to get them in good form for the clover and limes. The American cloth will be found suitable.]

Graffham, near Petworth.—Weather here very dull and cloudy. Wind N. and N.E. for a fortnight. Sycamores, chestnuts, and maples, in full bloom. No swarms yet in this part.—COLTRIP GILBERT.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

G. W. W.—*Crooked Combs.*—If a spirit-level is used for placing the hive perfectly horizontal, so that the frames with foundation hang perpendicularly, the bees are compelled to build straight combs and within the frames. The metal ends will keep the frames at the proper distance from each other, viz., one and half inch from centre to centre.

W. S., *Aboyne.—Bees Sluggish.*—1. The queen is probably worn out and the bees are raising a young one to succeed her. Foul brood will also account for the sluggishness of the bees. Thoroughly examine the skep by driving out the bees if necessary. 2. When a colony is very small with a prolific queen at its head she will often lay several eggs in a cell, the bees being too few in number to encourage her to extend the nest.

R. SANDALL.—1. *Uniting.*—Remove the weak colony from its stand and in place of it set an empty skep, in front of which shake off the bees from each comb and return the empty combs to the hive. When the bees have entered the skep replace it by the frame-hive, raised slightly in front, and shake out the swarm in front of it. Shake the weak colony upon the swarm as it runs in. Either queen may be removed, or you may leave the destruction of one to the bees. All this must be done in the evening. 2. *Drone Comb.*—Bees will store honey in drone-comb in preference to worker-comb. 3. *Doubling.*—You have done right in placing an empty hive beneath the colony. The queen in the upper hive will descend and breed in the lower one. As the young bees hatch out above the bees will store honey in the combs, which can be extracted.

A VICTIM.—1. *Foul Brood.*—We have no experience of fumigation with carbolic acid, as we always administer it in the form of phenol according to Mr. Cheshire's directions, but Calvert's No. 5 can be applied by fumigation. *See* Webster's advertisement in our columns. 2. It may be used for disinfecting hives, washing the hands, &c.—about one part to twenty of water. 3. It is very doubtful whether frost will destroy the bacteria. 4. Condy's fluid is a good disinfectant, or antiseptic, and would no doubt thoroughly disinfect hives, but we never heard of its being used as a specific in foul brood. 5. Thymol is used by fumigation and by means of any ordinary fumigator. 6. Unslaked lime, or newly slaked, is a powerful disinfectant and may be used for hives. 7. It is better to spray the hands with a weak solution of carbolic acid than to use it mixed with vaselin.

H. H. H.—*Fumigation.*—The process you refer to is called 'Hilbert's fumigating process;' the fumes of salicylic acid have the power of penetrating everything in the hive, and destroying the germs of foul brood. The apparatus used for the purpose is M. Bertrand's fumigator, in which a spirit-lamp has the flame so regulated that the acid placed in a metal dish above it is gently evaporated. For details of process consult *Cowan's Guide-book*, pages 138, 139, last edition.

E. G. V.—*Castor Oil Plant.*—There will be no harm in growing the castor oil plant in the vicinity of bee-hives.

T. M.—*Barrels for Storing Honey.*—If you use them, take out one head, otherwise you will find when the honey poured in by the bung-hole liquid becomes set and solid it will be a difficult matter to get it out. Treacle barrels would be as good as any, they will only require washing to be ready.

R. F. W.—*Dead Queen.*—The queen was fertile, the spermatheca being full of spermatozoa. Exhaustion was probably the cause of death from cold and want of food.

AGED AMATEUR.—1. *Hive Desertion.*—Your bees most likely left their hive for want of food. 2. *Comb of previous year.*—If the combs are clean and white they had better be left in the glasses, but if discoloured the honey would be of less value if they are not removed.

H. C.—*Requeening.*—You do not mention whether you purpose to purchase the new queens, or to rear them yourself. If the former, it may be done at once, introducing the queen in Mr. Simmins' method; if the latter, we should recommend that during the honey glut you remove the queen from the stronger stock, and let the bees raise queen-cells; one of which when almost matured insert in the weaker hive, first having taken away the queen.

H. A.—*A Vagabond Swarm.*—The swarm you found was a 'vagabond' swarm, and had most likely left its hive for want of provisions. Such swarms frequently leave their new quarters when hived if there is a scarcity of stores. By inserting a comb containing unsealed brood at the time of hiving, and after that feeding liberally, such swarms are induced to take to a strange dwelling which they otherwise would abandon. We never hive a swarm without at once commencing to feed them, even if they are able to get an abundance of food naturally.

MISS E. V.—*Dividing by a Lady.*—As you would have a difficulty in lifting your hives, the plan you propose,—to make the 'swarm' of frames of hatching brood from more hives than one, with a queen,—will give you a good stock; and as all the old bees will be with the old stock, and no brood to raise, you should super it at once.

B. KIRKE.—The drones, mature and immature, that the bees are casting out, are indications of starvation. Feed—feed—feed!

Show Announcements.

Giving Name and Address of Secretary, Date and Place of Show, Date of Closing Entries. Terms: Three Insertions and under, Two Shillings and Sixpence; additional insertions, Sixpence each. No charge made to Associations whose Shows are announced in our general Advertising Columns.

June 15, 16.—Wilts Agricultural Show. Rev. W. E. Burkitt, Secretary.

June 20-23.—Royal Counties' Agricultural Show at Reading. Entries close June 11th. See Advertisement.

June 23, 24.—Suffolk Agricultural Show at Bury St. Edmunds. Entries close June 6. J. Huckle, Secretary.

July 11-15.—Royal Agricultural Show at Newcastle-on-Tyne. Post entries to June 1st. J. Huckle, Kings Laugley.

July 14.—Oxfordshire Association at Headington. Hon. Sec., Rev. F. C. Dillon, Enstone.

July 21.—Prescot Horticultural Show. R. Rigby, Secretary, Station Road, Prescot, Lancashire.

July 20-22.—Lincolnshire Agricultural Society at Spalding. Entries close July 4. R. R. Godfrey, Secretary.

July 26-28.—Gloucestershire Agricultural Show at Cheltenham. Entries close July 12. W. D. Slade, Sec.

July 26, 27.—Warwick Agricultural Society at Sutton Coldfield. J. N. Bower, Secretary.

July 27.—Bishops Waltham Show. (Hants and Isle of Wight Association.) H. W. West, Hon. Sec., Swanmore House, Bishops Waltham.

August 3-5.—Yorkshire Agricultural Society at York. Secretary, H. L. Rickards, Poole, near Leeds.

August 9, 10.—Irish Bee-keepers' Association at Salthill Gardens, near Dublin. Entries close August 2. Hon. Sec., Henry Chenevix, Blackrock, Dublin.

August 11.—Handbridge, Chester St. Mary's Horticultural Show. W. E. Little, Hon. Secretary, Eastgate Row, Chester.

August 24.—Lancaster Agricultural Show. W. Liddell, Hon. Secretary, Dale Street, Lancaster.

August 31–Sept. 3.—Royal Manchester and Liverpool Agricultural Show at Manchester. W. Lees McClure, Hon. Secretary, The Lathoms, Prescot, Lancashire.

Business Directory.

For the use of Manufacturers and Purchasers of Bee-keeping Appliances.

The Name and Address and Business of any Manufacturer will be inserted in this List, under one heading, for One Pound per annum. Additional headings, Five Shillings extra. Advertisers in 'The Bee Journal,' whose orders amount to Five Pounds per annum, will be inserted Free.

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Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
British Bee-keepers' Stores, 23 Cornhill, E.C.
Burtt, E. J., Stroud Road, Gloucester.
Edey & Son, St. Neots.
Howard, J. H., Holme, Peterborough.
Hutchings, A. F., St. Mary Cray, Kent.
Meadham, M , Huntington, Hereford.
Meadows, W. P., Syston, Leicester.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
Stothard, G., Welwyn, Herts.
Webster, W. B., Wokingham.
Woodley, A. D., 26 Donnington Road, Reading.
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Baldwin, S. J., Bromley, Kent.
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Stocks of Bees and Swarms. Foreign Queens direct from Mr. Frank Benton. **Catalogue on Application.**
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The Entries close on Saturday, June 25th.
Prize Lists and Forms of Entry for Stock, Bee Appliances, and Implements, will be forwarded on application to Marshall Stephenson, Secretary. 176

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THE
BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, Cambridge Circus, W.C.'

[No. 260. VOL. XV.] JUNE 16, 1887. [PUBLISHED WEEKLY.]

Editorial, Notices, &c.

OUTLINES OF BEE-KEEPING FOR BEGINNERS.

(*Continued from page* 232.)

XII.—HOW TO TREAT RECENTLY-HIVED SWARMS.

1. The careful bee-keeper will endeavour to get his swarm to build out its combs and fill the hive as quickly as possible, and he will not leave the bees to do so without any assistance from him. Feeding gently will have the effect of keeping many bees at home comb-building who would otherwise be in the fields collecting. All swarms should be fed, even in fine weather, for the first week at any rate. At the time of hiving, give them a bottle of syrup, placed on the top of the frame in such a manner that they may have access to two or three holes in the feeding-stage. A hole must be cut in the quilt to allow the stage to be placed over it, and care should be taken to cover over the bottle so that strange bees cannot get at it from outside, otherwise robbing may result.

2. The syrup used should consist of 10 lbs. white lump sugar, 7 pints of water, 1 oz. of vinegar, and 1 oz. of salt, and the whole boiled for a few minutes, after which 1 oz. of salicylic acid solution should be added. This solution may be made by dissolving in 1 pint of warm water $\frac{1}{4}$ oz. of salicylic acid and $\frac{1}{4}$ oz. of soda borax.

3. The swarm should only have as many frames as it can comfortably occupy, the space being closed up with a division-board, and the spare frames hung in the division at the side. From six to eight frames are usually sufficient.

4. Swarms are greatly assisted by having given to them one or two frames of comb with hatching brood. These can be taken from established stocks if the bee-keeper have them, and they be strong enough to spare any.

5. At the end of a week, examine the hive, and if the combs are built out, put in a couple more frames. Add frames as soon as the bees require more room until the hive is filled with combs.

6. The first consideration of the bee-keeper should be to make sure worker-brood is being raised. If during the examination the queen has not been noticed, and the combs are not found to contain worker-brood, if possible, without delay, place in the centre, amongst the combs, a frame of comb containing eggs taken from another hive. Should the swarm have lost its queen, royal cells will be at once started. Should only drone-brood be found, the queen must be removed, and the bees should be united to another swarm having a fertile queen.

7. In ordinary seasons the bee-keeper will have to be contented if a young colony fills its hive with comb and collects enough stores to carry it through the winter without his assistance. In bad seasons it would be necessary for him to supply the bees with most of their winter provisions, and only in very good seasons can he expect to get any surplus honey.

XIII.—HOW TO MAKE AN ARTIFICIAL SWARM.

1. If, during the month of May, honey being abundant, a stock hive is found crowded with bees containing drones, and is not inclined to swarm naturally, not having therefore commenced queen-cells, it can be *swarmed artificially*.

2. Prepare a hive in the same way as for natural swarms, that is, hang in it frames furnished with guides or comb foundation. If there are frames available containing empty combs, so much the better, as these can be used to advantage.

3. If an artificial swarm is required from a straw skep, it may be obtained by *driving* the bees. Remove the skep containing the stock to some quiet spot, turn it bottom upwards, and stand it in a pail for convenience. On the old stand place an empty skep. On the inverted stock put an empty skep, bringing the edges together at the point towards which the combs run. Push a skewer through the edge into the lower hive so as to form a sort of hinge, and support the upper hive by means of a couple of stout wires bent at right angles at either end. Stand in front of the opening with back to the strongest light and commence rapping on the sides of the lower hive with open hands hard enough to jar the combs, but not so hard as to run any risk of breaking them from their attachments. After a few raps, which must be kept up regularly, the bees will commence their ascent to the empty skep.

4. As the driven bees ascend a sharp look-out must be kept for the queen, and after she is seen stop the driving when about half the bees have left. Remove the swarm and the stock, and place them on the opposite sides of the old stand, with

an interval of about three feet between them. The bees in the skep placed on the old stand can be shaken out in front of the swarm. If the stock or swarm appear too weak, either would be strengthened by bringing one nearer to the old stand, moving the other further away.

5. If the queen be not found during driving, the bees should be returned and another attempt made. Care must be taken to leave sufficient bees in the stock to nurse the brood and build queen-cells.

6. The driven swarm can be placed in a movcable comb-hive, if the bee-keeper wishes to do so, prepared as recommended above (2).

7. If the bee-keeper has one colony in a frame-hive, and wishes to make two, he must take a comb of brood and bees on which the queen is found, and place it in a hive, filling this up with empty combs or frames with guides. Then put it on the stand where the stock stood, and remove this to a new position. Insert an empty comb at the side of old stock, bringing the other frames close together. The bees on the wing will return to the old stand, join the queen, and form the swarm.

8. Artificial swarms should be made when the weather is fine, and many bees flying, and should always be fed. As most of the old bees will leave the old stock, this should also be fed, especially if it be short of stores or the weather bad.

9. Care should be taken not to multiply colonies too fast, by making many swarms. *Aim at having a few very strong colonies, rather than a large number of weak ones.*

HOW AND WHY PLANTS PRODUCE HONEY.

(A Paper read at the Vermont Convention.)

Self-fertilisation takes place where the seed-vessel and pollen are together on the same flower, and come in contact, and cross-fertilisation occurs when pollen from one flower is carried to the seed-vessels of another flower. The reasons why nature desires to cross plants is to secure greater height, weight, and vigour, and more seeds. Most plants are spoiled by self-fertilisation, the same as close breeding in animals; some plants usually self-fertilise, as the pea, lettuce, onion, and ground-nut; but large new varieties of peas are obtained by cross-fertilisation. The means whereby nature obtains cross-fertilisation are three: wind fertilisation, as in grasses; insect fertilisation, as in most flowers; as in honey-suckles. The prepotency of the pollen from another plant over that from the plant itself, is among the curious features of plant life. Plants also obtain cross-fertilisation by having the pollen and seed-vessels on separate plants, as in the case of willows. On separate parts of the same plant, as in corn, when in the same flower it is attained by having pollen ripen before the seed-vessel; or *vice versâ*, as in the plaintain, fire-weed, gentian, and verbena. There must be some great benefit in cross-fertilisation to offset the great waste of valuable pollen in some flowers, and small, closed flowers of violet have 100 grains, while the peony has three and one half million grains.

In relation to the means taken by nature to entice insects to plants, it is to be noticed that wind-fertilised plants are dull in colour, destitute of odour, and contain no honey, as in the case of pines and all conifers, hemp, hop, and grasses. Large, conspicuous flowers are visited much more frequently, and by a greater variety of insects, than small, inconspicuous ones. Bees probably distinguish flowers by bright-coloured leaves. When bright blue flowers were cut off in an experiment, bees crawled over to get other flowers. When the small, upper leaves, which bees do not use to stand on, were cut off, the bees visited the flowers as usual. Odours attract insects, as shown by flowers covered with a muslin net. When possessed of odour they do not so much need colour. Fourteen per cent of white flowers have a sweet odour, while only eight per cent of red ones have it. Honey was certainly put in flowers to entice insects. When the honey-sac was cut off a large number of flowers, more than half of them were not visited by insects, and produced no seed. Even dark-coloured streaks on coloured leaves of flowers are believed to be for guiding the insect to the honey-sac, so that it can suck a greater number of flowers in a given time, and hence produce more perfect cross-fertilisation. As honey is of use to plants only as it helps to cross-fertilise them, it is always placed where it will aid in this.

When mature, the pollen-vessels and the seed-vessels always stand in the pathway leading to the honey-sac. A certain amount of heat is necessary for the formation of honey. With some flowers, if the sun ceases to shine for half an hour, bees will cease to work on them for lack of honey. In most plants the construction and position of the pollen-glands and the seed-vessels are evidently arranged with the evident intention of making the bees rub against them when it seeks the flower for honey. In such cases the pollen is moist or glutinous. In wind-fertilised plants the pollen is dry and powdery, and the seed-vessel is usually sticking out, and hairy, to catch the pollen.

Many flowers are irregular, one or more leaves flattened to serve as a landing-place for the bee, and their honey-sac is on that side of the flower. Violets have large conspicuous flowers adapted to cross-fertilisation, and these flowers are very fragrant, and have much honey. In the harebell the honey-sac is at the bottom of the bell. The pollen-vessels open first, and shed pollen into the bottom of the bell, around the honey-sac. The seed-vessel remains closed. Several days later, when the pollen is dead, the seed-vessel opens and receives pollen from other flowers. In the daisy, one head has many flowers. The outer white leaves serve as an attraction and resting-place, and produce no pollen. Inner flowers have pollen-vessels in the form of a hollow tube, into the middle of which the pollen falls, and is pushed up and into view by the tip of the seed-vessel. Afterward, when the seed-vessel is full grown, and most of the pollen has been brushed off, the top opens and exposes the inner face to the seed-vessel to pollen brought from other plants.

In a common garden-bean the stamens shed pollen on the middle of the style. One of the flower leaves is wound into a tube containing both stamens and style. These remain inside the leaf until a bee alights on the wing petals, then its weight presses down the blossom, and first the end of the style touches the bee, and it gets any pollen which it has brought from the last-visited flower; next, the style sticks out still further, and the pollen on its middle hits the same spot, and prepares the bee for the next flower.

In the lady-slipper the honey-sac is at the bottom of the slipper. The bee enters the large slit on the upper side of the slipper. Edges are inflexed, so that the bee cannot creep out the same way. There are two small holes near the stalk, through which it can get out. In doing so it must brush against the seed-vessel and pollen-masses. If the pollen-masses were first the plant would be self-fertilised, but in fact the seed-vessel comes first, and pollen is carried off to be left on the stigma of the next flower it enters.

Orchids have a sticky material that will set at once; as soon as the insect's head touches it the honey is free in the sac. When the sticky material requires more time

to harden, the honey-sac is empty, and the honey is contained in the lining of the sac, and the bee has to bore through the wall of this lining in several places before it can get all the honey.

Bees have habits which help cross-fertilisation. They work on flowers of one kind as long as they can before changing to another kind. This is not to help the plant, but because they have learned how to stand and work better. Bees search for honey by instinct, by experience, since they work as soon as they emerge from the pupa state. They search introduced plants as readily as native flowers which do not secrete honey, and often try to suck honey out of the honey-sacs that are too long for them to reach. Bees cannot tell without entering a flower whether other bees have exhausted the honey, and hence the flower is more perfectly cross-fertilised. Mr. Miller found that in a certain set of blossoms visited by a bumble-bee, four-fifths had been previously visited.

The great number of flowers which bees can visit in a short time greatly increases the chances of any given flower being cross-fertilised. In one minute a bumble-bee visited twenty-four of the closed flowers of flax. In fifteen minutes a single flower on the summit of a plant of evening primrose was visited eight times by various bees. In nineteen minutes every flower on a certain flowering plant was visited twice. In one minute six flowers of a harebell were entered by a pollen-collecting bee, for when collecting pollen they work more slowly than when collecting honey. It was estimated at one time that the flowers in a certain flower-bed were each visited thirty times daily during the week or more than there were in blossom. Bumble-bees in collecting honey fly at the rate of ten miles an hour.

Bees have other habits which are directly opposed to cross-fertilisation. In flowers having several honey-sacs, if a bee finds the first one it searches is empty, it does not wait to search the others. Bees often get the honey by biting holes in the blossoms and sucking it out of the side. Whole fields of red clover have been examined in which every flower was thus bitten. The biting is done by bumble-bees, and then hive-bees suck through the holes. Bees are very successful in thus biting holes, always hitting the spot outside just over the honey-sac. In all such cases the plant is not fertilised.

The facts are that plants are very thoroughly fertilised by insects. A gentleman marked 310 plants which were incapable of self-fertilisation, and carefully put pollen on the stigmas of each day after day; he left an equal number to the insects. His produced 11,237 seeds, and the bees 10,886, a difference of but one in 35, and this difference is fully made up by the fact that he worked during a cold spell with continued rain when the bees did not. Of white clover, 10 heads unprotected gave nearly ten times as many seeds as 10 heads covered with gauze; 20 heads covered produced only one poor seed, and 20 heads open gave 2290 seeds. Of red clover, 100 heads covered gave nothing, and 100 heads open produced 2720 seeds. Insects will abundantly cross-fertilise plants growing one-third to one-half mile apart.

In the United States, hive-bees never suck red clover. In England they only suck it through holes made by bumble-bees. The clover cannot be fertilised by the hive-bee—it is too small—but it is cross-fertilised by the bumble-bee. Hence one gentleman has made this statement: The safety of England depends on the number of cats she keeps. He proves his proposition thus: Without the aid of bumble-bees the red clover could not be fertilised. Bumble-bees make their nests on the ground, where they are the prey of mice. Cats destroy the mice and give the bees a chance to live. Hence he reasons, no cats, many mice; many mice, no bumble-bees; no bees, no clover; no clover, no cattle; no cattle, no beef; and without beef where would the Englishman be?—Prof. W. W. Cooke.—(*American Bee Journal.*)

Foreign.

AUSTRALIA.

The people of Kangaroo Island have not yet realised what has been done for them by the Ligurian Bee Act. In these times of depression, when every new industry however small deserves attention, it seems passing strange that the islanders have not done more towards developing what should be a highly remunerative undertaking. They are in a unique and commanding position. Kangaroo Island is the one place in the world set apart for the rearing and production of pure Ligurian bees, which by an overwhelming weight of authority is pronounced to be the best race of bees known. There are several races of bees bred and manipulated for their honey. Amongst these are the common black bee, the Ligurian, the Carniolan, the Cyprian, the Syrian, and the Holy Land bee, each of which has its adherents. But no bees have so many admirers as the Ligurian, none are such general favourites, and for none is there such a constant and regular demand. When it is known that bees which are hybridised after the first cross gradually acquire the bad qualities and lose the good qualities of both stocks, and that the fashion of crossing and hybridising has become so common that in some parts purity of race has already become lost, the value of a place whence a pure race can be obtained can scarcely be over-estimated. Even in Italy the craze for hybridisation and experiment has become so great that it is feared purity of race will become a thing of the past. It must be remembered that the mating of bees cannot be controlled like the mating of horses and cattle. All attempts in that direction have signally failed. If therefore there be two sorts of bees in a neighbourhood, the chance of purity being retained is at all times very uncertain, with a growing tendency to a dangerous cross.

Particulars have reached us of a case in which a gentleman, notwithstanding great attention to breeding, had a little time ago to destroy several swarms of the second cross, which had become so fiendish in disposition that nothing could live near them. They attacked the cattle, horses, fowls, and every living creature with demoniacal fury and determination, and followed the bee-master into the house, so that had it not been for their destruction it would have become uninhabitable. They attacked strangers going along a public road fifty yards from the hives, and even settled in numbers with persistent viciousness on a toy dog that had been bought for one of the children. This viciousness seems the rule with second crosses. Under these circumstances it is not to be wondered at that a pure and gentle race should be highly valued, and that Mr. Root, one of the first bee-masters of America, on hearing of the dedication of the island to Ligurians, wrote to Mr. Bonney, an apiarian of whom any country might well be proud, that all the world would yet come to Kangaroo Island for its pure Ligurians. There are other facts which show the correctness of Mr. Root's anticipations. Well-known British bee-masters have called attention to the advantages which Kangaroo Island now has; and one of them, Mr. Raynor, while stating that England could not boast of anything like such advantages, has curiously enough related that thirty-five years ago, when sailing past Kangaroo Island, he exclaimed, 'What a magnificent location for an apiary!' Mr. Bonney has had frequent applications for information with regard to Kangaroo Island queens from Victoria, New Zealand, and Queensland, and is confident that with proper attention a large bee trade could be done.

The islanders should remember that their greatest advantage is not in respect of the honey crop, although that would be considerable, but in respect of the rearing of pure Ligurian queens. At present considerable sums

of money are sent from all parts of Australia for the purchase of queen-bees in Italy, the whole of which would come to Kangaroo Island if the demand could be supplied with certainty and dispatch. Those bees which have been hitherto raised on the island excel the imported bees in strength and fertility, for the long voyage from Italy in a confined space is always detrimental and often fatal. There are scores of men in America who make a handsome living out of queen-rearing, and a large traffic is done by post between the States and Canada, and there would be no difficulty whatever in sending queens from South Australia even so far as New Zealand. A skilful apiarist might easily raise four or five hundred queens his first season, and 1000 queens a-year could easily be disposed of after the establishment of a proper queen-rearing apiary became known at 14*s.* to 1*l.* each. It can readily be seen, therefore, what a loss there is in the neglect of this industry by the Kangaroo Islanders. It is not necessary to say much about honey. No country in the world excels Australia in either the fineness or the yield of its honey; and the French physicians have recently discovered that eucalyptus honey is most useful in medicine. The production in America in 1881 was 200,000,000 lbs. (the value exceeding 30,000,000 dollars), of which a large quantity was exported to England. Care and attention in this matter would add no little to the farmers' profit, as the island is as prolific in honey as the mainland. But as the pleasure and profit of bee-rearing are greatly increased by the possession of good working and tractable bees, and as the island has a monopoly in this respect, it will be almost criminal neglect if the islanders continue to ignore such a great advantage.—*South Australian Advertiser, April* 5.

UNITED STATES.

Apiculture at Cornell University.—A course in apiculture under Professor Comstock has just been added to the regular work. This course is intended to supplement the Professor's lectures on the subject. Each student is given a colony of bees, and is expected to attend to it himself. The bees given to the students are Italians, and are the property of Professor Comstock. The students taking this course have just had some practical work. A swarm of black bees had taken possession of a tree near Fall Creek, just opposite the Professor's house, and had to be taken care of to prevent them from hybridising the Italians. The tree was cut down, the bees hived, their queen and drones destroyed, and an Italian queen given to them, making them now harmless neighbours. Thus it will be seen that progressive and scientific apiculture is now being taught as a practical pursuit in several of the colleges in America.—*American Bee Journal.*

ASSOCIATIONS.

IRISH BEE-KEEPERS' ASSOCIATION.

A meeting of the committee was held on the 7th inst. Present: Dr. Allen in the chair, Dr. Knight, Dr. O'Farrell, Dr. Traill, Mr. Read, and the Hon. Secretary, Mr. Chenevix. The Hon. Secretary reported that forty-three new members had joined the Association since the last report was printed. He stated also that, in accordance with the instructions given him by the committee, he had secured the services of Mr. Green, expert of the British Bee-keepers' Association, to lecture and manipulate bees at the show in August. A sub-committee was appointed to complete the arrangements for this show. It was resolved that a conversazione be held in July.

LEICESTERSHIRE BEE-KEEPERS' ASSOCIATION.

The expert of this Association has just finished his prin[illegible]r tour. He has visited a large number of apiaries, and a considerable number of new names has been added to the subscription list.

A Jubilee Offer.—In order to clear off the debt of the Association, Mr. J. W. Bickley, of Melton, offers a donation of one pound provided nine others can be found to imitate him. Bee-keepers of Leicestershire, to the rescue!—E. B.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. Huckle, *King's Langley, Herts (see 2nd page of Advertisements).*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

OUR HONEY IMPORTS.

The value of honey imported into the United Kingdom during the month of May, 1887, amounted to 1912*l.* [From a return sent by the Principal of the Statistical Department H. M. Customs to E. H. Bellairs, Wingfield, Christchurch.]

A WORD FOR THE EXPERTS.

[1007.] In your issue of the 9th inst., 'Apple Dumpling' says, 'Experts are in hot water, and well they may be, seeing the expert has closed up and supered a stock of bees,' &c. In my journeyings a great many varieties of bee-keepers are met, and to the majority *general* advice and instruction has to be given; and I think it is far better to have supers on in readiness than to allow the hive to become *crowded* with bees before extra space is given, in other words, 'give room in advance of their requirements' as a preventive of swarming, &c. I frequently place supers on hives long before the bees are ready rather than leave them to the tender care of some gardeners (many of whom seem to have an inborn prejudice against 'them patent hives'), or perhaps to some local expert (?). It may perhaps interest 'Apple Dumpling' to know that another reverend gentleman, in Kent too, for many years known and respected as an authority on bee-matters, *removed* a super from a hive on the 31st ult., nearly all the sections being well filled —not with 'hailstones'—but beautiful honey from the fruit-blossoms, and from the same stock this day (11th June) about twelve more may be removed, and this has all been done in spite of cold 'nor'-easters,' lack of sunshine, and necessity for feeding (?). Apologising for trespassing on your space, Mr. Editor,—Roland Green, *Kent.*

WIRING FRAMES FOR FOUNDATION.

[1008.] I see in pages of *B. B. J.* this method of fastening foundation is gradually making way, the reason it has not already become universal is surprising when its advantages over the split top bar are apparent.

The 'tedious methods' were in use by us until about five years ago, when a few frames roughly wired were tried, and the result was so satisfactory that the next season these wired frames obtained the exclusive use in our apiary.

From that time they were offered for sale, the wire being strung through holes in the top and bottom bar, but finding this wire had an inclination to 'kink' when drawn through, our present method was arrived at.

Three half-inch wire nails are drawn through top and

bottom bars of frame, one in centre and one each an inch from ends (inside), these are partially hooked so as to hold wire by the use of a split key or turning tool (a small pair of round nosed plyers will do); the wire is then hooked over the bent nail, the diagonal braces being first put in starting from centre of top bar, the nails are then driven down tightening up wire, and the frame is ready to receive foundation.

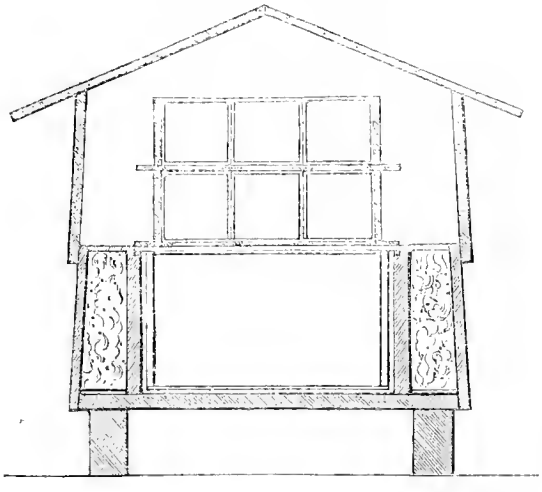
The sheets are best cut so as to touch the frame nearly all round, and are laid on a half-inch board with ledges projecting; the wired frame is then placed upon the sheet of foundation and embedded by the Woiblet spur. This is all that is necessary, although melted wax may be poured from a smelter on the edges if desired.

Probably fewer wires would be sufficient to keep the foundation straight and even, but when it is desired to strengthen it sufficiently to extract from soon after giving to bees, six wires (including diagonal braces) are none too much; and as thinner foundation may with economy be used, this number will really effect a saving in first cost, not taking into consideration that the comb will, when built out, stand any ordinary usage.

The objection (so called) of the bees to raise brood in cells through which wires pass is theory rather than practice. We have not noticed half-a-dozen such combs in some *hundreds* we have in use or stored for sale; and if it were so pollen or honey would be placed in them readily. That wired frames of foundation will take the place of wired foundation when once used is the opinion of—JOHN EDEY, *St. Neots.*

WATERTIGHT ROOFS.

[1009.] Seeing by several letters in the *B. B. J.* that some of your correspondents seem to find a difficulty in making a hive thoroughly watertight, which is at the same time interchangeable, I thought that I would send you a drawing of the hive we find best. I don't think the drawing requires any explanation, you will see the hive is perfectly watertight, and all the parts interchangeable. You can pile as many hives as you like one on the top of the other. The hive is in three parts—



floor-board, body, and roof, which is hinged to the front with a pair of pivot hinges, as recommended in *B. B. J.* It will take two tiers of frames—12 in. each, without alteration, of twelve frames and two tiers of sections above. It has a hinged shutter in front, and the entrances can be closed right up by two strips of zinc. The frames are quite plain, without shoulders or metal ends of any sort, resting on zinc runners. You will see the chief feature is in having the sides sloping all round instead of perpendicular.—F. F. MCKENZIE.

A LITTLE OF MY EXPERIENCE WITH CARNIOLAN BEES.

[1110.] In the year 1878, having frequent opportunies of going to see friend Martin, at Messrs. Neighbour's bee-farm at Hampstead, among other things, the Carniolan bees I especially noticed; and as I heard a good character of them as regards gentleness, combined with energy and industry, I decided to try them; so the same autumn I got an imported queen from Neighbour's for 10*s.* 6*d.* I safely introduced her, and the next year bred several queens from her. Of course, there was not much chance for the queen to mate with Carniolan drones; some got mated to Ligurian, while others got mated to English drones. Those mated with Ligurians were very nice-looking bees, but not equal in honey gathering to those mated with English drones, as the stocks bred from these were the ones that gave me more honey than ever I had from an English stock. I will not say but that in previous years I had taken as much from Ligurian stocks bred from queens got from Mr. Abbott. Of late years, Ligurians have been nowhere against the Carniolans, only that they are prettier bees.

In the summer of 1881 I took 76 lbs. in sections from one of these stocks of Carniolans, while the same year I did not take more than a little over 40 lbs. from either English or Ligurians. I do not boast of it as a great yield, but it was the best among my stocks, and our locality is not good enough to get more, as far as I can see. In 1885 I took 76 lbs. off another stock of these Carniolans; and, what is more, I have every reason to believe the queen was one that was bred in 1881. In the autumn of same year I thought I would supersede her, but she appeared so fat and sleek that I could not find it in my heart to take her away; but in 1886 they did not do so well.

I got another imported queen in August, 1885, and raised a queen from her, and just managed to get her mated to an English drone, though I had not many left. I introduced her to a stock of English bees, where she did well, and filled up the hive last spring. And this is the peculiarity I want to be noticed particularly: the stock stood side by side with an English one, and they had both been stimulated the same; I supered them the same night, and when in about a fortnight or three weeks' time I took off the honey, judge of my surprise to find the sections from the English stock were very dark, and thickly capped over, while the sections from the Carniolan stock were very light and transparent, and not so thickly capped either. I only had two or three pounds more than from the English stock, but it was far better to look at, showing to me that they had been going for the white clover, while, from the appearance of the honey, the natives had been going for, or chiefly for, the beans, of which we generally have our share in this part of the country.

I raised several queens last year, and hope to further test their work for light honey against the English. As to their quietness and docility, they are about like most bees, in my opinion; if they get thoroughly roused they can use their business end as well and as thoroughly as others, as on one or two occasions I have a lively recollection of them, while in a general way they are more quiet.—JOHN WALTON, *Honey Cott, Weston, Leamington.*

APIFUGE.

[1111.] I am sorry to say that I can confirm your correspondent's remarks as to the effects of using apifuge upon the hands. Both hands and wrists became covered with red and white eruptions of the most itching and irritating nature. I was so convinced at the time that this was the result of the apifuge that I have not used it since.—SCOTUS.

[1112.] Like your correspondent, E. Musgrove, I used

the apifuge with great pleasure in hiving my first swarm of the season this morning. During the afternoon I have been much irritated by two large bumps on my wrist, but I did not think of attributing them to the apifuge till I read just now of 'E. M.'s' experience. I have used it once before, and had no inconvenience. At your request I send this. Allow me to record my pleasure in your clever *Journal*.—Mary Constable, *Manningtree, June 9th.*

[1113.] I can understand the effect of this bee-soother on Mr. Musgrove and his nephew if there is any preparation of Arnica montana in it, for some persons are very sensitive to this drug. Maybe, it runs in families. I remember that, some years ago, Mr. Squires, one of the well-known druggists in London, telling me of his experience of it. He and I were walking under the portico of the Beau Rivage Hotel, Oudry, Lausanne, and he asked me whether the Arnica montana grew near where I lived. It was growing in the meadow before my house at Cour. In passing through Paris, Mrs. Squires, having sprained her ankle, called in a doctor, who gave her a lotion of arnica, which her husband applied. He was about to tell me the effect it had upon him, when I rudely interrupted him by saying, 'You've got erysipelas.' I had long known that in some persons the use of arnica was objectionable. Mr. Squires then told me that he could not go into a room where dry bundles of arnica were stored without suffering slight erysipelatous inflammation. I have used both arnica and apifuge. I experience no unpleasant effects. More than that, I had a sting on my wrist two or three days ago, and rubbed the place well with a finger moist with apifuge. I thought I never felt a sting less. Was it fancy?—J. Lawson-Sisson.

[1114.] Having made several trials of the useful 'apifuge,' I can say that no disagreeable effects have followed its use with me. Its application to the hands in the manipulation of two hives was most successful; in the case of the third hive it was not quite so much so, the bees on the opening of the hive flying straight at the hands and stinging viciously. Possibly the scent had faded to some extent.—C. T., *Blackheath.*

[Mr. Grimshaw, in a private communication, says respecting his apifuge: 'I must write and put some people right as to its use.'—Ed.]

HONEY *v.* SUGAR.

[1115.] In your issue of June 2nd, page 235, you give a long article on this subject signed by one '(Dr.) W. G. Phelps (*Practical Farmer*).' I read this with considerable interest, for it touched a question on which I had written, my remarks appearing in your columns (page 493, October 21st). This interest waxed into warm appreciation when '(Dr.) W. G. Phelps' did me the honour of quoting me:—'Says one writer,' and following up with an extract from my article in the *B. B. J.*, I felt as though I was caressed by a velvety hand. I heard the exquisitely soft drip, drip,—'sweet music's melting fall,'—as other weak mortals would who found themselves quoted. My diploma'd admirer did not, however, append my name or initials to his excerpt.

Further on he tells you, 'A leading medical and scientific journal advances the following good points in reference to its use,' proceeding with a long quotation from my said article, not 'Precept upon precept, line upon line, here a little and there a little,' but *verbatim*. I read on. Aha! what's this? Why the whole thing is my own article nearly word for word, and this appears as an original contribution by our worthy Doctor, whether of divinity, philosophy, law, or medicine, I know nor care not!

Unlike the distraught mother who shrieked 'Me nown! me cheyild!' I murmur something not loud, but deep, and wander into a soliloquy as to whether Doctor means Debtor, seeing that this proud author is indebted to me for the very words he uses; whether '(Dr.) W. G. Phelps (*Practical Farmer*)' should not be designated instead 'practical plagiarist:' but anyway if any of your readers care to compare the two articles they will agree that he is certainly a distinguished man. The incense which erstwhile charmed me, now only incenses me. Mr. Phelps' *réchauffé* is only a hash from a joint I laid before you; his 'resurrection steak' may be a toothsome morsel, yet it is well that attention should be called to the cold joint whence it is taken. If '(Dr.) W. G. Phelps' be desirous of masquerading in foreign garb, it is but just that the protruding ears should be pointed out. I have no objection to 'Practical Farmers,' but I resent the idea of being *practically farmed* by the Doctor.—R. A. H. Grimshaw, *Horsforth, near Leeds.*

[We have taken the pains to compare Dr. Phelps' article with that of Mr. Grimshaw, and we find in it more of Mr. Grimshaw than of Dr. Phelps. The communication of Mr. Grimshaw originally appeared in the *Leeds Mercury* and was reprinted in our columns. We know not through how many transmutations it may have subsequently passed, probably it did find its way into some 'medical or scientific journal,' where Dr. Phelps may have seen it without having a knowledge of its source. It has also been printed, as from the *Practical Farmer*, in the *American Bee Journal*. Mr. Grimshaw may well feel flattered at the wide circulation his communication has had. A short time ago we received an apparently original article from a newspaper published in Graaf Reinet, South Africa, with a request to reprint it in the *Bee Journal*, but on perusal we found it was one of our own brain-children which had somehow wandered to that distant land.—Ed.]

QUEEN INTRODUCTION: ANOTHER SUCCESS.

[1116.] Will you kindly allow me a little space in your valuable *Journal* to testify to the efficiency of Mr. Simmins' plan of queen introduction? On Thursday last (May 26), I received per post a Carniolan queen from Mr. Blow, and at about 3 p.m. on the afternoon of the same day I removed the queen to be superseded (from bar-frame hive). At 10 p.m. I removed 'her Carniolan majesty' from amongst her faithful subjects; and 'good gracious!' Mr. Editor, I had a job, bees running all over the box in fearful consternation, and buzzing about my ears, and I all the while in mortal agony for fear of losing such a valuable mite; but, however, after a minute or two of hunting I saw 'her ladyship' crawling up the side of the box, and I can tell you it was not long till she was safely enclosed in a wine-glass, and you may guess I was truly thankful. Well to make a long story short, I got a brother bee-keeper and with him repaired to the hive with the queen (after she had been enclosed for thirty minutes) and introduced her as Mr. Simmins describes, which is very simple. On Monday I examined the hive and found her all right and laying.

Swarming very much earlier here this year, one came off on the 28th, and another to-day. Hoping I have not trespassed too much on your valuable space.—Bonnie Scotland, *Kircudbrightshire, N.B. May 31st.*

THE FLAVOUR OF HONEY.

[1117.] In all discussions in regard to ripening honey, one essential fact has been entirely ignored, and yet the quality, if not entirely, is more dependent on it than on any other. That honey must be of a certain consistency is conceded by all; so quality first, and quan-

tity next, is what we are all in pursuit of; and how to get the latter without failure of the first is yet an open question. Admitting proper consistency, quality, then, is due to its peculiar flavour, which is derived from the nectar of the flower. All flowers and plants possess a peculiar and distinct odour, which is due to a volatile, or essential, oil peculiar to itself, and this same oil we find in the nectar of the flowers; this it is that gives honey its distinct flavour. When flowers are macerated in water, then distilled, the essential oil of the flower passes off with the steam, and, if condensed, the oil is found in minute quantities floating on the water; and this, as its name indicates, is very volatile, and, if exposed to the atmosphere, in time all evaporates. Thus, the flavour of the honey is dependent on the quantity of this oil present in it. Some flowers possess more of it than others; and, as a natural result, we find some honey with more of a distinct flavour. If the retention of this oil is desirable, then that method by which there is the least loss is the one we are in search of. That we have not yet attained this is evidently a fact; but that it is attainable is beyond question, and I doubt not but that careful experimenting will yet give us a standard to go by.—G. W. Brodbeck, (*American Gleanings*).

THE SUSSEX ASSOCIATION.

[1118.] I have just received the balance-sheet of this Association for the years 1885 and 1886, with the intimation that subscriptions should be paid at once for 1887. I see the annual meeting was held at Horsham on the 20th January. I have generally contributed my 'mite,' but do not now see any use in belonging to it. I have never had a visit from the expert, or heard anything of the Association's work; and from the fact of the meeting being held in January for two years, and the balance-sheets not issued until June, it looks as if the committee are 'behind' in all ways.

I have not given 2*s.* 6*d.* to the Association in the hope of getting five shillings in return in the shape of gratuitous advice from the experts (which is in some cases rather dear), but in the hope of seeing the Sussex Association come to the front again; but I am afraid we must conclude, by results, that there are more 'drones' in the committee than 'workers.' I hope soon to see a young, vigorous queen installed in our midst, or I am afraid the Association will soon come, as I have heard several say, to an inglorious end—which would be a great pity. There is honey in abundance and plenty of 'workers' amongst us, and it only requires a good prolific queen to preside over us in the shape of a good Secretary and officers to once again make our Association a prosperous colony, and the happy hum of a thriving community will be heard in this, and make itself heard in adjoining counties as well. I hope other members will take the matter to heart, and in the hands of 'workers' who have plenty of time and brains bring the Association up again to compare with others.—A Cottage Bee-keeper.

[There is earnestness in the piteous cry of this 'Cottage Bee-keeper,' and we hope it may reach the ear of some who are ready and willing to aid and uphold this evidently falling cause.—Ed.]

FOUL BROOD AGAIN!

[1119.] Readers of the *British Bee Journal* will not fail to recognise your solicitude for the general good shown in reprinting last week the extract given on page 242.

On the evening of the 9th I kept an appointment made with a neighbour, and with him examined a stock he had recently received as his start in bee-keeping from a large and well-known apiary. He was loud in praise of the fair way he had been treated, which I at first supported; but ere long I was obliged to point out to him an irregular line of dark, sunken cells; on opening many of these, *all we opened* were found to contain the fateful brown jelly-like substance, all outline of the embryo being lost. Now when I add that some four years ago I started much as he did—only with a swarm—getting hive and bees from this same apiary, and that for a season I endured foul brood, only eradicating it in the following spring by driving and starving out the bees, then after twenty-four hours hiving them in an entirely new hive, surely you will say that some means should be devised of preventing beginners in our interesting art being thus handicapped. It is true there were not many on each frame infected, for capped brood was abundant, with, as I describe, only a kind of broken line of these bad cells on both sides of three frames, the smell being clean and pleasant; could I have been mistaken? My advice was to trust that the promised honey-flow would work a cure, but my friend having read, and evidently inwardly digested, your strictures on the subject, asked me to remove all frames tainted so that he might destroy them 'at whatever cost.'

It must be hard on the apiarist in a large way of business to know what to do; on the other hand it is harder on novices who may happen to go to him for their start.—A. B. B. K.

WIRED FOUNDATION.

[1120.] I am sorry, in pointing out that the American makers of this foundation wired it the wrong way, I did not make my meaning clear in regard to the mechanical construction of the cells—'bees always build their combs with perpendicular walls' should have been 'with perpendicular *cell* walls.' Your experienced correspondent's remarks in 'Useful Hints' are quite in accordance with facts, the natural disposition is with the cells in horizontal rows, with, as he justly mentions, many modifications, prompted probably in the first instance by necessity and afterwards carried on by the same impulse, nevertheless I think I am quite correct in stating, after examination of hundreds of combs, that the cells have always perpendicular walls; of course we have all seen very peculiarly shaped cells, and what may be termed abortive cells, where the bees have changed from worker to drone cells and where obstacles have impinged upon their working, &c., but these exceptions only tend to prove the rule. My experience of the practical utility of this wired foundation is quite corroborative of your correspondent, for out of between 150 and 200 combs built on it I have not had a single break-down *in the hive*—a happy contrast to some English flat-bottomed foundation, of which I believe I had no less than thirty sheets give way last year, and others that did not actually give way altogether stretched down to the bottom bar and bent it down nearly to the floor-board.

When we get this foundation made equally good in England and wired the right way up, I venture to predict that it will drive all other kinds out of the market, and we shall hear no more of 'breaking down,' 'sagging,' 'buckling,' &c. The objection which used to be urged against its use for the brood-nest is no longer tenable, my queens seeming not only to have that special liking which most queens have for newly-built combs but to be imbued with a strong desire to fill every cell of the wired foundation so that the combs are even slabs of brood—this may be through the regularity and evenness of the cells, for when stretching takes place many of the cells are not used for breeding purposes.

May I be permitted to suggest the use of a small *screw* instead of the nail advised to be driven through the centre of the top-bar to prevent the foundation drawing out. The jar caused by driving the nail being likely to crack the foundation along the top-bar if it be at all brittle, a mishap not always readily perceptible. And, again, in the 'setting up of swarms,' where it is stated that a pitch

of half an inch from back to front is allowable; this, of course, is meant to apply only where the frames run from back to front, and not to those hives with the frames from side to side—this, of course, is understood by most of us, but beginners might get combs but rather out of the frames.

I strongly advise your readers to bear in mind what the writer states about the transfer of the super to the swarm if no excluder be used (and I never use it), the queen will undoubtedly ascend the super and breeding will be carried on there, better keep it off a day or two until the combs are sufficiently advanced to give occupation to the queen below.

Apologising to the writer of 'Useful Hints' for my intrusion on his valuable writings.—F. Boyes, *Beverley.*

SKELETON CASE FOR HOLDING SECTIONS.

[1121.] I have just designed a tin skeleton case for holding sections, the object being to divide the rows of sections in a crate into two parts, so that when the bees have started the middle sections they can be quickly placed at the end, and the end ones in the centre, thereby stimulating the bees to work harder and build straighter combs. They can be reversed upside down at the same time if desired. I have had them made to hold three and four sections to suit a twenty-one and twenty-four-section crate. They are made by machinery, and are therefore exactly the same size respectively and interchangeable.

Owing to the delay in the manufacture, I have been unable to get a block prepared to show them, but I hope to have this ready in a short time.

The ends are slotted, and are $4\frac{1}{4} \times 4\frac{3}{4}$ inches, thus leaving a $\frac{1}{4}$ inch space between the rows of sections, and have strips of tin connecting the ends, angled on one side and straight on the other, keeping the sections in their places, and allowing them to slip out on one side only. By their use a crate can be quickly cleared of its sections, and are a convenient means of packing sections for sending away, as the face is completely protected.—W. H. Jenkins, *Exchange Buildings, Swansea.*

A REQUEST.

[1122.] Perhaps 'A. E.,' or Mr. Webster, or some of your other correspondents, or all of them, might favour me with their ideas of a cheap case in which, say, from twenty-five to fifty sections might be packed off safely for railway travelling, and which a cottager might make for himself. The difficulty of sending away sections was a source of great trouble and annoyance and loss to myself and many more in this neighbourhood last season; and if you could assist us by telling us how we may avoid a repetition of last year's troubles, I (I may as well say *we* again, as I have no doubt many more cottagers have felt the same difficulty) should be grateful. —Uncertificated Village Expert.

INDIAN BEES.

The quantity of honey produced in Coorg may be roughly estimated at 25,000 lbs., of which 14,000 lbs. is from the domesticated, and 11,000 lbs. from the wild bees. The price realised for the former averages 3 annas the pound, and for the latter, which is of inferior quality, 2 annas the pound. The latter is valued most for the wax. The best wax is sold at 8 annas 8 pie the pound, and that of the ordinary quality at 5 annas 9 pie the pound.

The demand for honey is small. The quantity obtained is absorbed by the local consumption, being used with food by most classes of the people, and as a cooling drink especially on festive occasions. It is used also medicinally. The ryots of Yedavanac, near Somvarpett, who keep bees, sell the honey in the weekly markets in Mysore and South Canara, but not in any large quantity. Some honey is also imported from the Munjarabad Taluk of the Hassan District of Mysore for local consumption.

The right to collect honey in the Government reserved forests is rented out yearly for about Rs. 270. The wax from wild bees is exported by the contractors chiefly to Madras and the ports on the western coast. Bees are domesticated by villagers in several parts of Coorg, but chiefly in the Yedavanad of the Naujarajapatna Taluk, and in the Yelusavirshime Taluk. The domesticated variety is known as the Tudvé or Madiké (potjenu). It is a light black bee, with light grey wings, about the size of the common English fly, and is probably the *Apis florea.* It might be improved by the substitution of the Italian large yellow queen-bee, or the ordinary queen honey-bee, *Apis mellifica.* The Cyprian or American variety of bee might also be tried to obtain a cross. Some of the European planters might be entrusted with the experiment, and proper bee-hives should be supplied to them. At present earthen pots are used by villagers as bee-hives, with holes pierced in them. At the time the bees are expected to swarm, in the months of January and February, the inside of the pot is rubbed with wax, and they are placed with the mouth of the pot downwards in the jungle. On the bees collecting inside after ten or twelve days, the pots are carefully removed at night to the houses of the ryots, where they are kept under the eaves of houses, or under plantain trees. The bees extract honey from the bushes and creepers which are in flower in the jungle. When the honeycomb has formed in the inside of the pot in the months of May and June, the bees are removed by raising the pot up slightly, and blowing them aside while it is dark. These bees do not sting so badly as the wild variety. Few of them are killed in the process. Another pot is usually placed afterwards over the first, into which the bees creep after the removal of the combs, but generally they effect their escape into the jungle. A portion of the honeycomb is generally left in the pot as an inducement for them to return. Occasionally larvæ are found when the ryots delay too long to remove the honeycomb. These are taken and eaten. These bees are found also wild in the jungle, in the hollows of trees, and in deserted white-ant hills.

The varieties of wild bee, besides the partly domesticated Tudvé or Madiké bees, are known as the Hejjenu (the large bee), Kolu or Kaddi Jeneè (the stick bee), and Nasare or Muli Jeneè (the small bee). The Hejjenu is a thin long bee of a dark brown colour. They form numerous fine honeycombs on large trees and on rocks, in the months of January, February, and March. A jungle tribe called the 'Jain' (honey) Kurubars climb the trees at night, and smoke the bees by applying torches. As much as 12 seers of honey is obtained from one comb, and as many as a hundred combs may be counted on one tree. They generally return each year to the same tree, and gather, at times, under the roofs of large buildings. A precipitous rock near Ramaswamikanvè, known as the 'Jainkal betta' (honey-hill), is covered with combs each year.

The combs are valued, however, most for the wax, which is exported to the coast. The Kolu or Kaddi Jenè is a small black bee about the size of a young fly. They are found on hedges and on the branches of small trees. The combs are small and round in shape. They give little honey, and what is obtained is used mostly medicinally as a cure for coughs.

The Nasaré or Muli Jeneè is a very diminutive black bee, which builds its comb in the hollows of trees and in the crevices of rocks. The combs are very small, the wax thin, and both it and the honey, which is slightly acid to the taste, are of a black colour. It is mostly eaten on the spot by the herd boys, who search for it when grazing their cattle. Of these varieties none are of

any importance except the Hejjenu, first mentioned, which is probably the *Apis dorsata*. It might probably be domesticated. Their habits are not known to differ from those of bees on the plains.—*Asian.*

Echoes from the Hives.

Berlin House, Donegal, June 4th.—Bees have been working splendidly here since the 23rd ult., before that we had some very severe weather, cold with a good fall of snow and hail, which destroyed some of the early apple and sycamore blossoms. I have not seen such a sight of blossoms on both for years, the apple-blossom is nearly fallen now, but the sycamore is still in bloom, also the hawthorn of which there is an abundance, there is a regular smell of honey about my apiary. I had my first swarm on the 28th ult., and two more since, and several more ready any day for it. I have about 200 sections on different hives that I don't intend to let swarm, and they are working in them beautifully. So far my experience of black or brown bees is not very favourable; out of thirty stocks put up for winter, ten were black bees, the remainder Italians; at the end of March I found five of the black stocks without queens, and only two Italians without, I can hardly imagine what can be the cause, as five out of the seven were last year's queens. A friend asked me the other day to have a look at his two stocks of black bees, when I found one of them had no queen, very few bees, and any amount of honey, some of the frames completely full, she was a last year's queen, and put up strong for winter. What can be the cause? I have lost my faith in condemned bees; one of those found queenless was three stocks of condemned bees united, and there were also condemned bees united to some of the others, all queens were safe when put up for winter. I have been thinking, that perhaps, too much in-breeding has something to do with it, as I don't suppose there has been any new blood introduced into the locality for miles round since bees were known, except what I have got myself the last two years. I find that I can have swarms from Italians three weeks or a month earlier than from black bees, the queens are more prolific and the bees work better. There is here an insect, or I suppose I should call it a kind of bee, for it carries pollen, and I see it working on flowers, there is about twelve feet of a dry bank, and it is all perforated with round holes, which they go into, they are nearly as large as a small Italian, with a black body, and I see two sizes, they were flying about very early in the season and there seems to be a lot of them. I intended to have sent you some of them but perhaps from the description you will please tell me what they are, or I will send you some of them at any time. There is another kind that I see working on honey plants, smaller and of a reddish colour, I don't know where they locate themselves. I have not seen a single wasp this year, queen or otherwise, they must have completely died out.—G. Turner.

[The bees are burrowing bees, and belong to the class of Andrenidæ, of which there are many varieties; with the exception of their appearance, they have little in common with the habits of the hive bee.]

Odcombe, Ilminster, June 6th.—With the exception of the 4th and 5th inst., we have had another fortnight of most unfavourable bee-weather. It has now taken a turn for the better, which I trust may continue for a few weeks; we may then get some supers filled. The apple-bloom is nearly all gone, and in this part we must rely on the meadows, previous to their being mown, for any surplus honey; but fortunately the grass is rather late, and mowing will not be general for the next fortnight or three week. I had my first swarm yesterday, from a hive of ten frames, which had just commenced work in sections, and which I have treated as I usually do, viz.: place the swarm on the stand of the parent hive, and give it two frames of brood, four empty combs, and fill up with bars guided with foundation, and put on the sections. Cut out all queen-cells but one from the parent hive, and put in two sheets of foundation in the place of the two frames of brood given to the swarm.—J. Sarell.

Loose, Maidstone, June 10th.—The last few days have been very favourable for the bees, and they have been working vigorously on the sycamores, chestnuts, holly, maple, and hawthorn, all of which are now in full bloom. The weather, on the whole, last month was very unsettled, but we had a few very fine days, which the bees took advantage of. I had a large swarm issue on the 9th of May, which is the first I have heard of; but as it came from a hive that I wished not to swarm I at once returned it, giving more room below (making fifteen frames in all, spaced a quarter of an inch apart), and put on a crate of partly worked-out sections, which by the 26th were three parts sealed over, so placed a second crate underneath the first, which same is now well advanced, and as the bees still crowd out behind the dummy I intend putting a third. I had two swarms on the 26th, one of which I also returned, at the same time putting on a crate of partly-filled sections, which are now three parts full. The other swarm, which was placed in a new hive, has filled eight frames with brood and honey from starters only. I have also two other stocks working well in sections,—W. H. Dolan.

Swineshead, Lincolnshire, June 13th.—The continued frosts in May have verified the old adage, viz., 'As many rime frosts there are in March, there are the same number in May.' Mr. J. H. Brown, who keeps a record of the temperature of the weather, and myself, have for some years noted the fact. This year there were seventeen in March and fourteen in May, also three other mornings very near, which have very much checked the breeding of bees, and the sudden storms have caused a great fatality amongst the heavy pollen-laden workers; yet the apple-blossom, and may, and other flowers being kept back, have assisted them the last few days, having splendid weather to fully avail themselves of it, so that the hives are fast filling with pollen and honey, causing swarms from skeps; but I find the utility of my long twenty-frame hives, which have an extra entrance on the west side behind to raise nuclei and young queens in and prevent swarming, as orchard and fen-house apiaries are often not under supervision.—Robt. Thorpe.

North Leicestershire, June 13th.—To-day is the tenth successive fine day. Bees have been hard at work early and late, and have collected more than is required for present use. More room is called for, and there is a good reason to hope that stocks will be well up to the mark when clover begins to bloom. Bees at present are at work on sycamore, hawthorn, apple, charlock, 'greens,' dandelion, meadow orchis, gilliflowers, and mountain-ash.—E. B.

Honey Cott, Weston, Leamington, June 13th.—After a week's nice weather we seem fairly to have got to a yield of honey, with miles of large hawthorn hedges in full bloom, some of which are nearly twenty feet high, and clovers, and trefoil, beans, &c., blooming, too, takes me back to one of the Crystal Palace shows, where Mr. Rushbridge showed honey from whitethorn and clover, which, as the Editor remarked, grew together simultaneously at Sidlesham. Have been very busy last week supering stocks. Had my first swarm only on Saturday, while to-day I have had a monster swarm of Carniolans, which, after taking out queen-cells and a frame or two of brood, I shall return, as I do not want to increase my number of stocks but little, if any at all. There is great promise of a good yield of honey if the weather keeps nice.—John Walton.

Blackheath, June 13th.—The season has been very late with us, the fruit-tree blossoms coming and going without much advantage to supers. At present the weather is glorious, and bees are beginning to take to upper boxes. A fine swarm came off on the 26th of May, and a cast, almost as good, followed a few days later.—Charles Toland.

Beverley, June 13th.—I am far too busy taking off crates of filled and completed sections to answer the remarks of your correspondent, 'Apple Dumpling.' Weather glorious here. Bees doing wonders. No swarms; but honey 'superabundant.'—F. Boyes.

Leeds District.—Since the 4th of June the bees have been working better; but very few swarms have as yet appeared. Hives are strong, and have wintered well; and with the plentiful supply of blossoms we are this year favoured with, there is every probability of a good honey harvest.—Wm. Dixon Beckett, Senr.

NOTICE!

Our practice is to have the JOURNAL *ready for press on Tuesday evening, but as next Tuesday is the day of Jubilee, we shall be compelled to finish on Monday. We should therefore be much obliged by our correspondents and advertising friends sending their communications so that they may reach us by Monday morning at latest.*

NOTICES TO CORRESPONDENTS & INQUIRERS.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

FRATER.—1. *Number of Frames.*—Six standard frames are not sufficient for a strong swarm; we never give less than ten. You ought to supply eight, at least. Increase the brood-nest by adding more frames. Also more sections may be given behind. Much, however, depends on the season and income. You may remove to an outhouse in October. An empty frame may be added at spring for drone-breeding. 2. *Nuclei.*—Workers and drones are both put into nuclei. The brood is given to keep up a supply of young bees. Sufficient honey is usually transferred to nuclei over and around the brood in the frames; but it is good policy to feed with syrup. 3. *Sycamore.*—We believe that the bees gather pollen from the sycamore, but not much honey. 4. *Price of Honey.*—There are no statistics which would enable us to give the weekly price of honey. 5. *Honey-Flow.*—You can only judge of the honey-flow by the flowers in bloom and the weather—sunshine, temperature, &c. 6. *Queen-Introduction.*—The plan you suggest of introducing a queen may probably succeed, but we advise you, in preference, to follow Mr. Simmins's method of direct introduction.

E. P.—The two pieces of comb are not affected with foul brood, but only with chilled brood.

C. C. T.—*Breed of Bees.*—The bees forwarded are common English bees.

T. COTTON.—*Casting out Brood.*—Casting out brood at this time of the year is usually a sign of want of food, or it may be the removal of brood that has become chilled.

A LEARNER.—*Sections.*—You should put one rack of sections on first, and when the bees have taken to this, raise it and place a second between it and the top of hive. If hives are sufficiently strong, you could put a third under the second, —when the bees are working well in the first two. This way of proceeding would be better than giving them the three racks at the same time, more especially as you do not expect your honey-flow for a week or two. The top rack will be completed first. Proceed in the same way with the skeps, and if strong and honey abundant they would bear two racks of sections.

M. LIN, *Essex.* — *Burrowing Bees.* — The bees carrying pollen into worm-holes and into holes of the wall are not your hive-bees, but some species of Andrenidæ. The Andrenidæ are a section of the class Apidæ. Probably, the bee passing into holes is an *Andrena Trimmerana.* This is a burrowing and solitary-living bee. They are male and female. If you had taken the trouble to dig into the holes where you saw the bees enter, you would have discovered their cells. These cells are beautiful specimens of insect architecture. They are neat and perfect. They are shaped like a thimble, made from particles of sand, glued together by some viscid fluid which the bees are able to secrete. The outside of the cell is roughish, but the inside is perfectly smooth. In each cell is a pellet of sweetened pollen about the size of a red currant, sufficient for the sustenance of the infant bee. They collect a large amount of pollen for their family. The bee that you saw entering into the crevices of the wall of the house is another kind of solitary bee, probably what is termed *Megachile muraria.*

G. CLARK.—*Aborted Drones.*—The bees were dead on arrival, and somewhat smeared by the food (?) which you packed with them, which was unsuitable for the purpose. The bees are evidently affected with Bacillus Gaytoni. The wingless drones were aborted through chill in development.

Show Announcements.

Giving Name and Address of Secretary, Date and Place of Show, Date of Closing Entries. Terms: Three Insertions and under, Two Shillings and Sixpence; additional insertions, Sixpence each. No charge made to Associations whose Shows are announced in our general Advertising Columns.

June 15, 16.—Wilts Agricultural Show. Rev. W. E. Burkitt, Secretary.

June 20-23.—Royal Counties' Agricultural Show at Reading. Entries close June 11th. See Advertisement.

June 23, 24.—Suffolk Agricultural Show at Bury St. Edmunds. Entries close June 6. J. Huckle, Secretary.

July 11-15.—Royal Agricultural Show at Newcastle-on-Tyne. Post entries to June 1st. J. Huckle, Kings Langley.

July 14.—Oxfordshire Association at Headington. Hon. Sec., Rev. F. C. Dillon, Enstone.

July 21.—Prescot Horticultural Show. R. Rigby, Secretary, Station Road, Preseot, Lancashire.

July 20-22.—Lincolnshire Agricultural Society at Spalding. Entries close July 4. R. R. Godfrey, Secretary.

July 26-28.—Gloucestershire Agricultural Show at Cheltenham. Entries close July 12. W. D. Slade, Sec.

July 26, 27.—Warwick Agricultural Society at Sutton Coldfield. J. N. Bower, Secretary.

July 27.—Bishops Waltham Show. (Hants and Isle of Wight Association.) H. W. West, Hon. Sec., Swanmore House, Bishops Waltham.

August 3-5.—Yorkshire Agricultural Society at York. Secretary, H. L. Rickards, Poole, near Leeds.

August 9, 10.—Irish Bee-keepers' Association at Salthill Gardens, near Dublin. Entries elose August 2. Hon. Sec., Henry Chenevix, Blackrock, Dublin.

August 14.—Handbridge, Chester St. Mary's Horticultural Show. W. E. Little, Hon. Secretary, Eastgate Row, Chester.

August 24.—Lancaster Agricultural Show. W. Liddell, Hon. Secretary, Dale Street, Lancaster.

August 31-Sept. 3.—Royal Manchester and Liverpool Agricultural Show at Manchester. W. Lees McClure, Hon. Secretary, The Lathoms, Prescot, Lancashire.

Business Directory.

For the use of Manufacturers and Purchasers of Bee-keeping Appliances.

The Name and Address and Business of any Manufacturer will be inserted in this List, under one heading, for One Pound per annum. Additional headings, Five Shillings extra. Advertisers in 'THE BEE JOURNAL,' whose orders amount to Five Pounds per annum, will be inserted Free.

HIVES AND OTHER APPLIANCES.

ABBOTT BROS., Southall, and Merchants' Quay, Dublin.
APPLETON, H. M., 256A Hotwell Road, Bristol.
BAKER, W. B., Muskham, Newark.
BALDWIN, S. J., Bromley, Kent.
BLOW, T. B., Welwyn, Herts.
BRITISH BEE-KEEPERS' STORES, 23 Cornhill, E.C.
BURTT, E. J., Stroud Road, Gloucester.
EDEY & SON, St. Neots.
HOWARD, J. H., Holme, Peterborough.
HUTCHINGS, A. F., St. Mary Cray, Kent.
MEADHAM, M., Huntington, Hereford.
MEADOWS, W. P., Syston, Leicester.
NEIGHBOUR & SONS, 149 Regent St. & 127 High Holborn.
STOTHARD, G., Welwyn, Herts.
WEBSTER, W. B., Wokingham.
WOODLEY, A. D., 26 Donnington Road, Reading.
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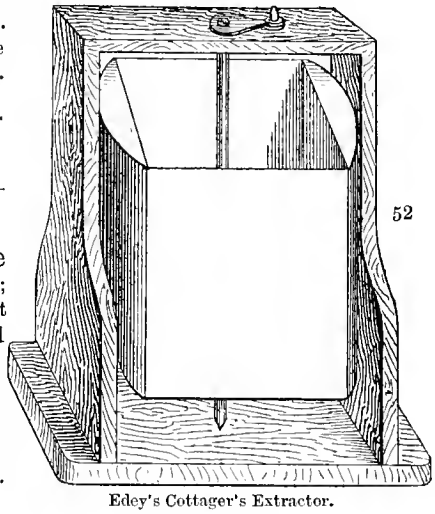

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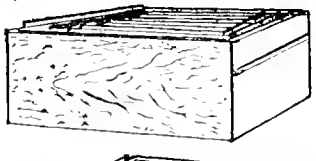

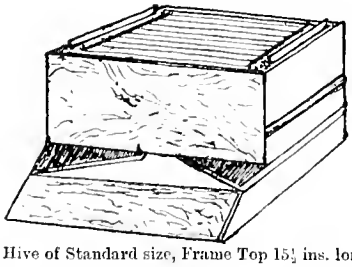

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THE BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, Cambridge Circus, W.C.'

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Editorial, Notices, &c.

THE QUEEN'S JUBILEE.

Victoria, Empress-Queen of hearts,
We, loyal subjects, bring to thee
The fruit of ours, from many parts,
In this thy year of Jubilee.

Fruitage of love in words of love,—
Fruitage of wealth in deeds of gold,
From poor below to peer above
Our level fealty behold!

Our voices blend in unison
In the great pæan raised to thee,
From myriad throats we speak as one,
In this thy year of Jubilee.

Gentle and wise, and good and great
In loyalty of womanhood,
Thy rule has blessed thy vast estate;
On virtue based, thy throne has stood.

Almighty Sovereign of the spheres,
Commend our gracious Queen to Thee;
Thou hast been with her all the years,
Graciously bless her Jubilee.

W. H., *Dorking.**

'OUR QUEEN AND GOVERNOUR.'

As we take up our pen, with the sounds of 'clanging steeples,' which 'with gala-flags are hung,' and with the notes and signs of preparation for the approaching day of Jubilee meeting us on every side, it is difficult to withstand the temptation of bearing our part in the expression of loyalty which the event has evoked; and seeing the exhibition of feeling is so widespread,—we may say so world-wide and universal,—we cannot consider it our duty to be silent. There are some special reasons why bee-keepers should take their part in the general gratulations. In their twofold position as citizens of this great country and as bee-keepers, they can join as earnestly and as fervently as the most loyal in the loud shout, Long live the QUEEN!

There are many points of similitude—'to compare great things with small'—between the Royal Lady that reigns so beneficently in our midst and the hive-queen that rules over thousands of industrious, loyal, and attached subjects, whose interest bee-keepers have so much at heart, and over whose welfare they so anxiously and sedulously watch.

We do not propose to specify with any degree of minuteness the points of resemblance that have occurred to our mind, it will suffice on the present occasion only to note the historical steps which have led to the recognition of the relation which the queen-bee bears to the other denizens of the hive.

Our gracious Majesty now sits securely on a throne as firmly fixed as that of any monarch on the face of the earth; but as we pass upwards through the line of her ancestors, we note the many changes the dynasty has undergone. Saxons, Danes, and Normans, the houses of Plantagenet, Lancaster, York, Tudor, Stuart, and Hanover, flit before our vision,—all helping in the progress of years towards the consolidation of the kingdom as we now rejoice to view it. The hive-queen has, too, her history, and we would desire to trace it from the first faint dawnings of light which have from generation to generation led up to the full knowledge which we possess of her position and duties in the economy of the hive.

For our first knowledge of her we must hark back many ages. We must consult that repertory of the knowledge of the ancients, Aristotle, who wrote B.C. 384, to ascertain the views that were in his time entertained respecting queens, or rather, as he calls them, kings. Aristotle informs us that there were two sorts of kings, or rulers; the better sort of a red colour, the inferior black and variegated, and of a size double that of a common bee. The cells of those rulers were placed at the bottom of the combs. The king had a sting, which however he seldom used. To the king belonged a peculiar scent which had the power of attracting his subjects from a distance. The king never left the hive, even for food, or for any other purpose than swarming. When the king died, all was disturbance and ruin. But though Aristotle had some faint traces of truth he had no clear idea of the sex of the queen, and so he calls her βασιλεύς, or king.

Passing on to Virgil, who flourished about the beginning of the Christian era, he styles the ruler *Rex*, or king, and describes with great spirit the attachment of the bees to their 'governor':—

'Lydian nor Mede so much his king adores,
Nor those on Nilus' or Hydaspes' shores,
The state united stands while he remains,
But should he fall, what dire confusion reigns!

* From the *Commonwealth*. The lines are from the pen of a bee-keeper who has frequently contributed to our pages.

Their waxen combs and honey, late their joy,
With grief and rage distracted, they destroy;
He guards the works, with awe they him surround,
And crowd about him with triumphant sound;
How frequent on their duteous shoulders bear,
Bleed, fall, and die for him in glorious war.'
Georgics, iv. 211.

Pliny throws no light on the sex of the governor or ruler. After him we pass through many hundreds of years, which in many things, as well as bee-keeping, may well be styled 'the dark ages,' till we arrive at the beginning of the seventeenth century. In 1609, Dr. Butler, well named 'the Father of English apiarians,' wrote his *Feminine Monarchy*. In that he gives the ruler a more precise designation. He says: 'I am enforced to strain the ordinary signification of the word *Rex*, and to translate it *queen;* sith the males here bear no sway at all, theirs being an Amazonian or feminine kingdom.' But Butler was not so far advanced in his knowledge as to say that the queen was the mother of the whole community; his idea was that the queen-bees bear only 'lady-bees,' and that in special cells, which 'for the most part are outside of the combs; for though it be fit for princes to be near their chief cities, yet they do not love to be pestered in the midst of them. These cells were larger than the rest, to show that subjects' houses should not match their sovereign's in greatness.' Neither does he incline to the opinion that worker-bees are undeveloped females; for he says, 'Honey-bees are the females, by whom the bees of both sexes (first the females and then the males) are bred.'

We must give the honour to the Rev. Samuel Purchase for being the first to describe the ruler by her true name, namely, 'Queen-mother.' In his work, entitled *A Theatre of Political Flying Insects* (1657), he says, speaking of swarming:—'Signs of after-swarms are more manifest and certain, for about eight to twelve days after her first swarm is cast, the next princess will begin to tune in her treble voyce a mournful and begging note, as if she did pray her *queen-mother* to give her leave to begone. . . . . The first day after the grant from the *queen-mother*,' &c., &c. Another and important step was taken by Swammerdam, whose work on *Insects* was published in 1669, when he stated 'that from one female, the only one in the hive, all these kinds of bees are produced,' that is queens, workers, and drones.

This great fact having been thus enunciated, the queen had now arrived at her true position as the queen-mother of all the population of the hive.

From this time, by the labours of Maraldi, Réaumur, Huber, and others, the life of the queen has been further elucidated and the arcana of the mysteries which had gathered round her have been gradually opened.

At the present day the position of the queen is higher than at any previous time. Enterprising men have gone to distant climes, have imperilled their lives, and have circled the wide earth for improved races and strains of queens. Since the introduction to the notice of the public of the virtues of the Ligurian bee, a considerable traffic has arisen in foreign queens; and many persons have devoted their lives and their energies to provide for this want. Lately we have heard that the government of South Australia is so interested in the purity of the race of bees that it has passed an Act of Parliament and set aside an island for the purpose of keeping pure that race which they consider the most important. All bee-keepers, then, feeling how dependent the hopes of progress in bee-keeping are on the welfare and well-being of their queens, are prepared in more senses than one to 'acclaim with one glad voice' '*Vivat* REGINA!'

OBSERVATIONS ON QUEENS.

'God save the Queen!' Such is the heartfelt expression from every loyal worker in this great empire, more especially in this year of Jubilee; and may the year be one of peace and prosperity to all, whatever their calling may be!

This year of Her Majesty's glorious reign is an exception, and we may be excused for mixing matters a little, though in a paper devoted exclusively to bees the mention of our own sovereign but reminds us of the great similarity between our own government and that of the hive. It has been stated that the queen-bee does not govern the hive. Well, as a matter of fact, our own Queen could not rule without the assistance of many of her subjects; and so it is with the honey bees; it is merely a question of mutual assistance—a true commonwealth. The presence of *our* queen, the existence of the hive queen, tends towards a condition of peace and prosperity. Let either be removed, and the community is thrown into a temporary state of disorder, until a new head be established.

I have been asked to write something about Queens; but what? We have recently had so much about queen introduction that it is hardly advisable to start that subject again. Their natural history, too, has been treated of lately by a more able writer than myself, so I have decided to give a few general observations that may prove of interest to practical bee-keepers.

We have already seen that the queen is the life and soul of the hive, and knowing that the apiarist must be studying his own interests by ascertaining that every queen he has is doing well. Your queen may be prolific, but her bees, perhaps, do not come up to the standard for honey-gathering; they may be of bad temper, or perhaps they gather propolis in undue quantities. The mother of such bees should be superseded at the first opportunity by one known to be of better character.

When a colony does not come along in the spring as it ought, the fault can mostly be found in the queen; but it requires care and judgment before one can decide for certain. The condition of the stock during the previous autumn should be taken into consideration, also what stores they had to winter on, and whether they were properly packed. If these matters can be satisfactorily accounted for, then proceed accordingly, and do not hesitate for one moment, as everything depends first upon the queen.

It is not generally known that a queen taken from a hive while in full laying order is nearly always accepted at once by any colony that has no queen. Young queens

that have only recently commenced to lay are more restless and are not so readily taken to without precautions. Fertile queens, long confined, are frequently objected to, and, like unfertilised queens, run much risk if due care is not exercised.

The statement has been almost universally accepted that the queen leaves the hive only to be fertilised, and when going off with a swarm. For my own part I am convinced by several cases of actual observation that queens do sometimes take an airing, especially after confinement. In spring when a general flight takes place, queens are not balled so much by strange bees entering the hive as by her own bees when returning from flight, just as young queens often are after an excursion in search of drones.

Does any one know where to get queen-excluding zinc? I have tried the correct material, and yet I find not only virgin, but large laying queens go through. Certainly it excludes drones, and that is the only use I have for it. The best way to exclude queens from supers is to use all worker comb in them and to give her plenty of room below.

Many want to know the best time to buy queens. Any time from May to August, certainly not later, though often they are inserted later, to the almost certain ruin of the stock. A young queen given late breeds late; nature will have her period of repose, consequently by the time she would lay well next spring, her bees will be dying off rapidly, in consequence of frequent flights before young bees are hatching freely. Again in spring how many there are who, finding a stock queenless, send off for a new queen! How much better to unite at once, for what does the dealer from whom he purchases? He runs considerable risk in wintering nuclei for the sake of the young queens, as he is aware they are much sought after early in the season. As the queens are disposed of, often to be introduced to colonies (?) weaker than the nuclei they are sold from, the dealer unites, thus gaining strength while pocketing cash into the bargain, the purchaser often finding, to his regret, that his bees have not sufficient 'backbone' left to do the new queen justice. If one must try a new variety, why not give her foreign majesty a fair trial with at least an average stock in good heart, and thus be in a position to give a full and faithful report?

I am in a position to state that many queens are lost by being inserted where there already exists a virgin queen. These are sometimes difficult to find I am fully aware, but where there is the least uncertainty, by inserting a comb with eggs, one can soon tell if a queen is in the hive. If one is present they will not complete, even if they begin to build queen-cells, though more often none are started. In the absence of a queen, cells are rapidly completed.

In giving queens by my direct method I have been much interested to find that very often the bees exhibit personal attachment for their original queen. While accepting the new sovereign, I have noticed they behave with every sign of queenlessness, and continue to build queen-cells, such state of excitement being kept up for several days.

I have other things to mention in regard to fertilisation of queens, but this must be given in the concluding paper on the foreign races, which I am reminded remains incomplete. I hope to find time for the same at an early date.—S. Simmins.

USEFUL HINTS.

Weather.—'That an Englishman is always known by his remarks on the weather' has become a proverb. This, no doubt, in a great measure arises from the changeable, fickle climate of his native land. When he becomes acclimatised in other lands, with climate less fickle, he ceases to remark on the weather.

The Anglo-Australian, for instance, has little cause to speculate on change of weather. For six months—twelve months—one year—the Australian sky is never clouded, save by an occasional thunder-storm, and oh! how weary the eye becomes from gazing day after day on the brazen vault of heaven, on the 'never green Eucalypti,' on the arid, scorched, and burning plains. How many who have gone out there exclaim, 'England, with all thy faults, I love thee still!'

Frost, snow, hail, rain, &c., have at length given place to real summer weather. And the change has been very sudden; so much so that bees have exhibited signs of mental disorganization, not knowing whether to swarm, or to fill sections, or other supers, or to 'hang out' idly, and do nothing. In well-organized apiaries, however, they are filling sections, or swarming for increase, or raising young queens in nuclei, according to their owner's wishes, and to his heart's content. They are indeed, under sunny skies, revelling in the May bloom, on the bean-fields, on the broad yellow plains of mustard and brassica, and conveying home no stinted quantity of luscious nectar. May this pleasant realisation last. May the refreshing shower fall, 'keeping all things in tune,' causing the sweet-scented bloom of the white clover fields to fill the air all around. But the 'Mower,' with its horrible everlasting jingling, fills our ears, alas! The meadows, laden with the perfume of the blooms of their shorn flowers, are already being rendered bare and honeyless. Why cannot the farmers wait a little, and give our bees a chance, and themselves reap heavier crops? Still our hope, in the grazing districts, is the white clover. Then the limes. And then——

Sections are filling fast. Our plan has been to give small triangular pieces of the thinnest foundation in these, in preference, of late, to full sheets, on account of the 'buckling.' But in Lee's sections we have given full sheets, which are beautifully drawn out into splendidly filled sections. This is owing, no doubt, to the inserted foundation being stretched and held firmly in position—so that the bees are, in a manner, compelled to build straight comb.

Our only regret is, that all our sections are not of this pattern. We have also in use several of Mr. Simmins' 'Comb-honey supers,' each containing 'skeleton folding section frames,' holding seven of the $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{3}{4}$ inch sections, so that each super contains twenty-one sections. The whole arrangement is very neat and expeditious, a principal feature being the discarding of separators. The three skeleton folding frames are kept in position by keys, which are most easily inserted and withdrawn. These are the sole invention of Mr. Simmins, we believe, and are patented.

Wired Foundation.—Mr. Boyes' remarks on this subject, in our last issue, are very much to the point, and there is no necessity for any apology from him. We are always glad of suggestions. The insertion of screws into divided top bars is a longer process than the simple driving in of a nail, which secures the foundation equally well, and has this advantage, that the divided bar can be more easily reopened than when screwed. If the frames of foundation are prepared upon a block, resting on a firm bench, the driving in of a French nail does not perceptibly shake the foundation. For some years we have used the nail in preference to the screw, and find that it answers the purpose just as well.

Our advice as to placing the hives of swarms level, except with a slight inclination to the front, should have been qualified, as Mr. Boyes justly observes, by stating that the hint applied to those with frames ranging from back to front. Our hives being all upon this plan, we are apt to ignore the parallel system. It is evident that to raise one side of a hive having parallel frames would throw the combs out of the vertical; and this is one of the disadvantages of the system, for we count it a decided advantage that hives should have a slight inclination from back to front, not only to assist

the bees in carrying out refuse matter, but also as affording an easy escape for condensed moisture. A quarter of an inch pitch is, perhaps, sufficient.

Superseding Queens is a practice often adopted by skilful apiarists, but one which, as a rule, we do not follow; although the ages of our queens being known, any queen failing in fecundity after her second year, if not superseded naturally, is removed and replaced by another. Generally speaking, an old queen is superseded by the bees, very often during the aerial flight of a natural swarm an old queen, whether from some defect in the wings or elsewhere, is lost, and the bees return to the parent hive, rarely attempting to swarm again unless the loss occurs early in the season. In such case they will cluster outside the hive in large numbers, remaining at home apparently idle. When this occurs it is best to give surplus boxes and bottom ventilation, driving the outlying bees into the hive. About twelve or fourteen days after the loss of the old queen her successor may be expected to mate when she will find plenty of empty cells for the reception of the eggs. These remarks have reference to skeps rather than to frame-hives, in which the loss of the queen can be discovered, and more easily remedied by the introduction of a fecundated queen without loss of time—a matter of great importance during the honey season. The most prolific queens, those which have produced large swarms to lead them off (for the bees lead off the queen) are those which are most often lost during the issue of a natural swarm, and such queens are usually two years old at least, and often three or more. Here, then, we have nature superseding queens without the aid of the bees or their master, and there seems to be a growing opinion amongst the greater part of experienced and able apiarists in favour of allowing the bees to supersede their queens. The general idea seems to be that a prosperous colony will not tolerate an aged or unprolific queen, and the general consensus of opinion amongst the foremost American apiarists is, that, as a general rule, it is best to allow the bees to do the superseding of their own accord. Then, again, there is the difference in queens to be considered. We have repeatedly had queens of three, and even four, years old better than others at one and two years. Another point to be considered is the time at which the change should be made. During the honey-flow, except in the case of change while swarming, would be most inopportune, hence we find that the most usual time of superseding is during the latter part of July and the month of August, and not unfrequently the old queen is tolerated until the young one commences to lay. Often have we witnessed this, but never knew the old queen to survive through the winter.

Supered Colonies Swarming.—An Italian colony, large and strong, which had received a case of sections, and before we were aware of the fact had quickly filled it, sent forth a swarm as we stood watching it. Immediately the bees began to tumble out, helter-skelter, we sat down beside the hive in order to seize the queen on her exit. At first the rush was somewhat slow and deliberate, but increased in energy, until quite at the fag end of the exodus out came the queen, which was immediately, while taking a turn or two on the alighting-board, taken in the fingers, and with half-a-dozen of her children placed in a small wire cage, which at swarming time we always carry in our fob and returned to our pocket. The swarm was now well out, and after circling around for ten minutes partially settled on a bush near by. Now was our time for action. The square frame-hive was raised and an eke four inches deep was placed below it. The case of beautifully filled sections was removed and an empty one took its place. By this time the bees, despairing of their queen joining them, had begun to return to the hive, their entrance being expedited by carbolised goose-quill. When all had entered we placed the mother and her few attendants on the flight-board and watched her majestic entrance to her domain. And now a second case of sections is fast approaching completion, and a third has been inserted beneath it, and all goes on quietly without further sign of swarming. We excised no queen-cells, but have no doubt that the bees have done so, or at least allowed the queen to do it. Room and ventilation below and above was all we depended upon, and the bees are perfectly satisfied and are working splendidly. The queen was of last year and very prolific, and of course we did not wish for increase. The captured queen might have been utilised otherwise than by returning to the hives and the section cases would have been filled almost equally well.

Addition of Brood.—To *swarms* working for surplus an addition of a brood-comb or two from other colonies is very advantageous during the first ten days after swarming, since no young bees will be forthcoming for about a month after hiving, and young bees do not work in the field until a fortnight old; hence, from the loss of old bees and the non-production of young ones, the colony becomes reduced in numbers, and often the queen's domain—her brood-nest—is partly stored with honey.

East Winds and Smoke *v.* Carbolic.—Although the weather continues bright and fine, we still experience strong easterly winds, which always render the bees irritable and restless when handled. Smoke, we think, is to be deprecated as causing too much disturbance in the hive. Since we gave up smoke our manipulations have been far quieter and the bees in a more natural state and less irritable, remaining quietly on their combs without clustering or rolling off during inspection. A piece of calico or house-flannel is sprayed with weak carbolic solution, and gradually takes the place of the hive quilt while being drawn aside without the escape of a single bee. The bees retire below, *i.e.* to the lower parts of the combs, and the frames may be quietly raised one by one as desired when an examination is necessary. If the operation is protracted, a little fresh spray may be thrown over the cloth while resting on the hive, and will effectually keep the bees quiet; indeed, this method of manipulation is the most simple and effectual of any we have tried, and is far superior to smoke. And what a relief to lay aside the dirty bellows smoker, with all its paraphernalia of fuel, lighting, relighting, &c., and, after all, finding fuel not alight just at an important moment!

Removal of Surplus Cases may be effected in a similar manner about noon on a fine day, when few bees will be found in the cases. Having removed the covering and spread the carbolised cloth over them, raise the cases slightly on wedges. Then pass a carbolised quilt between the hive and cases, and remove the latter to the manipulating room or to a shady spot, where each section may be withdrawn and the few remaining bees brushed off.

Bee-loving Hen.—In the centre of our apiary, in the midst of fifty hives, under the floor-board of a strong colony of Italian bees, standing upon a few bricks, a fine cuckoo dorking hen has made her nest. One by one eggs were deposited until the number reached twelve. Incubation then began, and the expectant mother has for ten days closely hugged her eggs within a foot of the flight-board of the hive, under which she sits with its teeming population busy all around her. A bee-house containing eight hives—two of them holding strong colonies of Cyprians—stands in rear of the hen, with other hives in front of her. Hives to the left of her, hives to the right of her! and no sting has as yet annoyed the poor patient hen. The dangerous time will be when the brood emerges. Bees hatching above, chickens below! However, we shall hope quickly to remove the latter out of harm's way. Every morning, when her fellows are fed, stealthily the hen leaves her nest; after regaling herself, stealthily she returns, causing neither commotion nor irritation amongst the

bees. For many years we have rarely kept less than fifty head of poultry located close to our apiary, of which they have the full range, and our chickens are never stung, nor did we ever see the latter attack the bees, with the exception of a few straggling drones being picked up and devoured. In these hard times then, to the well-worn 'Keep bees' of the Bishop, let us add, 'and poultry also.'

A LOWESTOFT APIARY.

Taking advantage of a day which put itself forward as the first of spring we paid a visit to an apiary of Mr. L. Wren, the expert of the local Bee-keepers' Society. Here we found a dozen hives, and learned that there were another dozen in another garden, and between thirty and forty at Beccles; the home apiary is kept expressly for raising Ligurian queens, the others for honey. The bees were somewhat torpid, but being gently stimulated by the influences of the heightened temperature. They were quartered in the bar-framed hives, which were imbedded in shavings and other things to increase the temperature. Scanty were the flowers in the neighbourhood, but the bees were 'improving the shining hour,' and every now and again a home-returning labourer negotiated the safety door of the hive. The bee has the credit for a great deal of sagacity, but it was easy to see that the bump of location or of topography, as the phrenologists would say, was not so very well developed. Frequent mistakes were made as to the hive, and the bee having tried to get 'nto 'the wrong box' was beaten off from hive to hive till it found its own. It should be said that the hives were placed very close together, and such mistakes were almost pardonable. The bees did not appear to be at all laden, and the examination of the honey-bag of one or two revealed the fact that the land was not yet abounding with honey. Over the tops of many of the hives artificially-prepared food consisting of cakes of sugar, flour, and wax, or a something which looked very much like it, were placed, and the bees had made prodigious bites out of these. The circumstances of one hive had induced an attack of dysentery or an inlet of a chilling draught, which had brought about a heavy mortality, and the carcasses of the deceased, 'uncoffined and unwept,' were plentifully scattered about. A bee, it must be understood, is an insect with very little sentiment, few affections, and no sympathy. It pays no attention to dying relatives, and if one happen to expire the bees do not stop to render succour or pay any mark of respect to the corpses. A sharp eye is kept on the queen or mother bee, who seems to be regarded with the same respect that the farmer bestows on a favourite brood mare; the drones or males come in for the harshest of usage, and the work of cell-making goes on grimly. The apiarian community would be a good subject for women's rights speakers, and we are surprised that the society has not adopted the hive as its armorial insignia. Bees are veritably brought face to face with petticoat government, although it is a mistake to suppose they are governed by the queen. The bee is like a great many people in this world: it has obtained a great reputation for all sorts of things on a very narrow basis. Mr. Wren showed us a fine-looking queen which he had obtained from Germany, and it seems that the breed of bees is to be improved by the same means that stock is improved. Her apiarian majesty now crosses the Atlantic Ocean (in boxes), and New Zealand and Australia are continually demanding good Ligurian queens. The pure Ligurian or Italian bee is the best worker, and as the aboriginal English bee is approached in breed matters go wrong. Having seen Mr. Wren take out cluster after cluster of bees and examine them (we are not certain whether he did not make them protrude their tongues and feel their pulses), we just waited to see the way in which the new wooden hives are made—by a clever adaptation of a small circular saw worked by a pretty gas engine. Any one who is about entering on the profitable path of bee-keeping ought to pay a visit to Mr. Wren, and we prophesy that apiculture will shortly progress rapidly in Suffolk. The profits are good, and honey is of great value to the community. By default of bees tons of good honey may be lost to us which flowers have produced in vain. Here is the discovery of a new harvest. Honey has qualities which admirably adapt it to beer-makers' use, and in Great Britain alone some 9,000,000 lbs. a-year are used in the breweries, being very much better than sugar for such purposes. At the present time we are importing vast quantities of honey from America, and the demand is so great that there is a great deal of adulteration resorted to. California has grown richer with her bee-farming than with her gold-mining, and we think that Suffolk, at an humble distance, should follow in her wake and take to bees.—*The Lowestoft Standard.*

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.*' *All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *King's Langley, Herts (see 2nd page of Advertisements).*

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

A BEE TOUR THROUGH LANCASHIRE AND NORTHUMBERLAND.

(*Continued from page* 248.)

[1123.] On the afternoon of Wednesday I set off for Ecklington, being due to lecture at Felton, two and a half miles from Ecklington station. I was met here and hospitably entertained by a number of the bee-keepers in the neighbourhood. Felton is *par excellence* the bee-keeping district here. Thousands of sycamores, or, as they call them here, plane-trees, grow in and around the village. At this time the bees were 'roaring' on them. I here met the breeder of a celebrated queen that produced a colony which stored 200 pounds of surplus honey in one season in two crops, clover and heather. The bees were in fine condition; in fact, I did not see a weak stock among the large number of bar-frame hives that I examined.

Thursday I ran over to Warkworth in company with Mr. Greenwall, who lives here; had a look round its ancient castle, and then on to Alnwick, where I lectured during the evening. Both the bees and bee-keepers here were conspicuous by their absence.

The next day, Friday, I was due at Belford, where the energetic (?) organiser of this lecture was—after some trouble on my part—discovered, but he knew, or did not want to know, much about the lecture, so that I had to set to work, and with the assistance of Mr. Colville of Chatton Heath, managed to get a few of the bee-keepers together and held our meeting.

Paxton in Berwickshire on Saturday completed the week. Here I found a gentleman greatly interested in the industry, and endeavouring to spread it abroad as much as possible. What a charming change after my my experiences at Alnwick and Belford!

After spending a rather lonely Sunday at Berwick-on-Tweed—I had to wait eight and a half hours for a train—I arrived back at Morpeth at 7 p.m. I had promised Mr. Schofield to dine with him, but, alas! man proposes, but trains dispose.

On Monday I had a regular day among the bees, it

being just the right sort of weather. I was driven from Meldon station by Mr. Britain, first to his apiary, where I was most hospitably welcomed, and then on to the largest bee-keeper's apiary in the county, Mr. Codling's. I found all the bees here in grand order. In the afternoon, after another pleasant drive to Middleton station, I took train to Rothbury, where I had a most numerous and intelligent audience.

Hexham on Tuesday. Here I was nearly 'mobbed' as to who should dispose of my person while I stayed there, it falling to the lot of Mr. Bell to entertain me. A well-attended meeting in the evening, which, as we commenced and finished early, was 'wound up' by a quiet little conversazione, strictly confined to bee matters.

I had a good look round the next morning at the apiaries of most of the bee-keepers in the neighbourhood, and whilst walking to Corbridge, in company with Mr. Bell, he accosted a straw skeppist with the question, 'How is it you were not at the lecture last evening?' the said skeppist, with unblushing effrontery, answering, 'What for, mon? I ken mair aboot bees than onybody.' I did not try to make any impression here, especially as he was well aware that I was the lecturer.

Haltwhistle was my next stop. Here we had a well-organised and well-attended lecture, thanks to the energy of Mr. Macadam. I here made the acquaintance of a blind bee-keeper, owner of three stocks. I ran over to his house the next morning and had a pleasant half-hour's chat on bee-matters.

My last lecture was at Bellingham. Here one of the most pleasant days was spent in the company of the Rev. J. G. Flint, who piloted me about among the bee-keepers of the district. All seemed pleased to get any little bit of advice or commendation. I found very little of the 'I-ken-mair-aboot-bees-than-onybody' style of bee-keeper in this neighbourhood. Indeed this was a *finale* that made me almost wish that I had not finished my course. But back to friend Bell's to spend the last evening in Northumberland, and then, after a long journey of considerably over 300 miles, found me safely ensconced in my own armchair on Sunday morning. I had what is called a good forty winks that afternoon.

Unfortunately I found two districts affected with 'foul brood.' In one it was almost the exception to find a healthy colony. I took a gentleman round with me, and instructed him in every particular as to its detection, and also how to deal with it afterwards. He made a very apt scholar, and I trust will be of service in eradicating the disease from the district.

I think that after this, with the assistance of such an energetic secretary as Mr. Schofield, that the Northumberland Bee-keepers' Association will be started on a good sound basis, with a local secretary to each of the districts I visited. Such were the plans I advocated, and saw well started.

Number of bar-frame hives examined, 379. Next week I will give a description of the Lancashire bee-cellar.

IN THE HUT.

'Where golden bees by alchemical prank
Make gold instead of honey.'

[1124.] I never so clearly realised the existence of 'golden bees' as I did the other day whilst watching the labours of an artificial swarm now they have fairly got to business. Bees were crowding in with their loads of nectar and pollen—the odour of the former being distinctly perceptible—

'The weary porters bearing in
Their heavy burden at the narrow gate.'

About every tenth bee appeared like a yellow spectre amongst the crowd, covered as it was with glistening chrome-hued dust—head, thorax, legs, and abdomen. I can only compare the tint to that of newly electro-deposited gold: furnace-refined gold doesn't seem to be sufficiently lit up.

The following may be new to some readers, as it was to me, copied from a friend's MS.:—

'A Yankee out a walking in Virginia (in Teeling),
While to himself a talking, experiences a feeling,
Strange, fearful, and alarming.
From his caput to his knees
(As he suddenly discovered)
He was covered o'er with bees.
They lit upon his eyelids and perched upon his nose;
They colonised his puzzled face and swarmed upon his clothes;
Explored his swelling nostrils, dug deep into his ears;
They crawled up his trowsers, and filled his eyes with tears.
Did he holler like a loon?
Or, was he scar't?
Did the crittur cut and run?
Ne'er a one.
Wasn't scar't a mite;
Never cuts nor hollers;
But hived 'em in a nail-keg tight,
And sold 'em for two dollars.'

I rejoice to see 'Amateur Expert' again amongst us. We can ill afford to do without 'Jottings.' Goodness knows, the necessary reports of Association meetings, &c., are dry enough reading at best. I know a youth who makes it a matter of almost religious duty to pore through the *Journal* word by word, week by week, and on winter evenings before a roaring fire it proves to him—well, an effective cure for insomnia. Therefore the columns of the *B. B. J.* are much more palatable when they have the peculiar twang a dose of 'Jottings Zest' gives. My poor attempts at compounding 'Yorkshire Relish' make me appreciate the light appetising sauce of 'A. E.'

How refreshing it is to stumble on something about bees in church!—I mean something in church about bees. I was caught *in flagrante* on the 24th morning, turning down the page whereon it says 'They came about me like bees.' I should dearly like to drop into some church and find one of our grave and *reverend* seigneurs preaching about bees after the manner of Canon Hole, and roses. Surely if there are 'sermons in stones,' there are 'discourses on drones;' 'words of wisdom for workers;' 'The Biblical biology of bees;' 'The quest of the queen,' &c.

If the huttites had known of the passage of Ambassador Webster through Horsforth the other day they would have tried to 'hive' him for a bit, and he might have assisted them in the fumigation of our huts 'par le fumigateur Webster,' which being translated may read 'Webster the Smoker.' By the way, the fumigator is favourably mentioned in this month's *Revue Internationale*.
—X-Tractor, *Horsforth, near Leeds.*

USE OF APIFUGE.

[1125.] In justice to your correspondents, if not to Apifuge, I should not be silent respecting the complaints of E. Musgrove in last week's issue, and confirmed in this week's, to the effect that my substance causes lumps or blotches on the hands. Such adverse comments are not in the ratio of one per thousand of the instances where the stuff is used with success, and this percentage about tallies with those idiosyncrasies of constitution which will be found occurring when any powerful drug or perfume is used—they are the exceptions which go to prove every rule. The smell and taste of honey itself—our great desideratum—produces precisely similar symptoms on certain constitutions to Apifuge (Père Langstroth and many others to wit). The scent of roses, musk, heliotrope, violets, and many flowers, the smell and taste of parsley, celery, garlic, and many culinary

herbs, are distinctly objectionable to some (pepper and other condiments as food may be also included in the list). When the use of these is persisted in we find symptoms appear such as are complained of. It will perhaps be so with Apifuge, but the instances will be so very rare and exceptional that they will be of little account, especially when I assure the subjects that the ultimate result on their skin will be beneficial, not deleterious. I did not, nor do I, desire this substance to be used as a medicine for outward application, or I might at the outset have told the public that on myself it instantly stopped the pain of stings, that it accelerated the healing of slight wounds and abrasions, that its effect in cutaneous affections is decidedly beneficial, and that, especially where there is a tendency to scrofula, it *improves* the skin.

In speaking of constitutional susceptibilities, the Rev. J. Lawson-Sisson (1113), to use his own witty expression about myself, has 'hit the right nail on the head' when he says 'it runs in families,' and his instance of Arnica montana is much to the point. I may, however, whilst thanking him, give him the assurance that the presence of A. montana would effectually condemn Apifuge as a bee-sting-preventer if it were used in its composition, which it is not.

Mr. Lawson-Sisson again was right in instancing Apifuge as a pain-killer of bee-stings. He asks, 'Was it fancy?' If he will kindly try again he will find it was not.

Some people seem to think that if a little be rubbed on the hands the bees will not sting the face or neck, and that they can immediately dispense with the smoker along with the veil and gloves. This is incorrect to this extent: Apifuge certainly charms (puzzles rather) the bees, but is only a direct protective for the surface on which it is rubbed; and the smoker should only be discarded after experience. Again, it is only fair to ask people to use the same care in manipulating with, as they do without it. The application, too, of a few drops should be repeated when the odour ceases to be perceptible on smelling at the hands.

I did not say as much as I might justly have done in favour of this stuff when I first brought it out; I was afraid of the accusation of being perhaps too sanguine as to its various merits. I knew I had found a sting-preventer, and as such only I laid it before your readers.

I need not worry you by saying anything further beside remarking that I have experimented in very many ways with Apifuge, even to the taking of it inwardly, but *never* with any disagreeable or painful effects.—R. A. H. Grimshaw, *Horsforth, near Leeds.*

APIFUGE.

[1126.] I have tried this soother in examining my hives at three separate times since spring. In lifting a few days since frames of a hive to one consisting of four boxes holding thirty-eight frames, every frame examined carefully on an extremely hot day, I can both testify to its great assistance and less worry and cause of gorging to the poor bees, and am thoroughly satisfied with its use. (Page 256, Nos. 111 and 112.) As to the red and white eruptions, I for one have not experienced this trouble. I usually rub a few drops of glycerine on my hands and wrists first, but merely for the object of preventing the too rapid evaporation owing to the great heat of my hands, and also I find the apifuge is more easily applied to the surface and more evenly. I trust Mr. G. will be able to suggest some relief to those who suffer from the use of it from tender skins.—W. Goodall, *The Knowle, Rastrick, June 18th.*

STING PREVENTERS.—NEPETOS PURPUREA.

[1127.] I have tried methyl salicylate many times this year, and I have observed that it answers very well until my hands began to get hot, and then the bees began to sting. I have only once used Grimshaw's Apifuge, but the effect of it seems to be the same, and as soon as my hands got hot, I received several stings. They both have one great advantage, namely, that they give confidence, but I am not *perfectly* sure that they afford any extra protection to cool hands wet with water. When the hands get warm, I have tried dipping them in water, and putting on more of the salicylate, but it was of little if any use. I think the way in which the sting-preventer operates is to prevent the bees from noticing the animal smell of the hands. On former occasions I have tried vinegar, and it had some effect. I have also used it frequently for putting on gloves after the bees have stung them, and for this last purpose it seems to me to answer admirably. When the hand is stung, a drop of honey prevents other bees following suit.

A recent correspondent speaks of the *Nepeta Mussini* (982). Is it the same plant as the *Nepetos purpurea* mentioned in Miss Cooper's letter in the *Journal* of the 15th April, 1885? I bought some cuttings from that lady for 1*s.* 6*d.*, and I consider it was a very good investment. It is one of the few things that bees will touch in a small garden, and they are always at it—last night till about 8 p.m.—and it flowers all the summer. Patches of it look very well, and cuttings grow most easily. I have given some to a non bee-keeping friend, as he thought it was so pretty.—L.

[We invested 1*s.* 6*d.* in Miss Cooper's *Nepeta purpurea*, and with our correspondent have had every reason to be satisfied with it as a bee-plant. The *Nepeta Mussini* is very similar to it, but rather larger-leafed.—Ed.]

CHEAP PACKING-CASES FOR TRANSMISSION OF HONEY PER RAILWAY.

[1128.] Premising that 'Cottager' glazes his sections of honey before he sends them to market, I commend to his notice grocers' empties. Wrap and tie your honey in parcels of, say, a dozen in each parcel, then procure your box, say, ¼c. starch box, cost 2*d.* or 3*d.*; then place a little meadow hay at bottom, then your parcel of honey, pack tightly round sides and overtop, cord, and label, 'Honey-comb, with care, this side up,' and your honey will travel from Land's End in Cornwall to John o' Groats in Scotland without the least damage. I myself have sent some to India, *viâ* Suez Canal, packed as above described, and it has opened as clean and nice as when first packed. Then for larger quantities, say, half gross of sections, ask your grocer for a cube sugar box, cost 6*d.* Tie up your sections in dozens in brown paper, put a layer of hay, then a layer of two dozen sections, then another thin layer of hay, another two dozen sections, more hay, at same time well packing round each side of the parcels with hay, then your last two dozen sections, and over all pack very tightly with more hay; cord and label as above. I forgot to mention handles of cord. Make two holes large enough for cord to go through, one a little lower than the other, so that your handle crosses the grain of the wood, and about two thirds of height of case. If no handles are provided the railway porters are apt to walk cases by the corners in a zig-zag manner, thereby shaking the contents more than the journey by rail.—W. Woodley.

BALSAMS: THEIR COMPOSITION.

[1129.] 'It is asserted by a medical writer that of four celebrated quack medicines (viz., the Balm of Gilead, the Balsam of Rakasira, the Balsam of Mecca, and the Balsam of Honey), not one contains a single particle of the article of the name the proprietors have given them, the three first being composed principally

of spirits of wine, and the latter of tincture of benzoin.' —(Herald.)'—*August* 1826, *Galignani's Messenger*.

Fancy tincture of benzoin being used to manufacture Balsam of Honey!—J. Lawson Sisson.

BE READY.

[1130.] Dear me, Mr. Editor, how important it is to be always ready! so much so that one can scarcely realise the same in reality unless they get into such a mess as I am in at the present time. I thought I was safe, but this beautiful weather has come and found me behind. Plenty of honey to be got, and plenty of bees to get it, and not half enough room to store it, although my hives hold from fourteen to twenty standard frames each, and super crates on containing twenty-one and twenty-four one-pound sections, still the bees continue to cast very large swarms, in some cases from seven to eight pounds each. On the 10th inst. very little done in supers, now, the 14th inst., supers full, and nearly all the queens are crowded completely out of laying room. I had two large swarms on the 24th ult., one the 26th, one on the 28th, one on the 30th. I cannot say how they have run since, as I have been so very busy in trying to fetch up lost time that I have not had time to hook the proceedings of the bees. They keep me so very busy every evening that I scarcely know which way to turn for the best. This must teach me a good lesson, to be ready at another time, and I hope it will have some little effect upon some more of our bee-keeping friends to be ready at all times.—C. H. W., *Aylesford, Maidstone, June* 14.

REMOVAL OF HIVES.—FRATERNISATION OF BEES LEFT BEHIND WITH EACH OTHER AND A STOCK THAT REMAINED.

[1131.] Lately I removed seven or eight stocks in bar-frame hives, and one similarly hived stock that was in an old granary, within a hundred yards of the apiary. The hives were taken away (all except one stock) on the 25th of May last, in the early afternoon of that day when the bees were flying freely, and, of course, numbers were shut out of each hive. I had an idea that these bees might be received in the hive left behind, and so it happened.

Within an hour after the disappearance of the last of the seven hives there was not a stray bee to be seen. I had put an open newspaper on the site of each hive, as it was removed, for the bees to collect on, and I shook off at the entrance of the hive a few score bees that were the first to gather upon it at one place; at this time the air was full of stray bees wheeling hither and thither in an evident state of excitement. Their numbers, instead of increasing, fell off as hive after hive was shut up (by perforated zinc secured over entrance), and it struck me the bees were being admitted into the hive before referred to. The hive in the loft was removed last, the stock was a strong one, and a large number of the bees were from home, as they kept arriving while we were securing the hive, and clustered about the entrance made for them in the weather-boarding of the old granary. Half an hour afterwards I visited the place prepared to collect the bees with the intention of carrying them to the hive in the apiary, but found they were gone; they had probably found their way themselves 'of their own sharpness.'—T. P. C.

A Goat Stung to Death by Bees.—About a week or ten days ago, two goats (male and female) were tethered together on a small plot of grass about fifteen yards from two hives of bees, and twenty from the cottage. The cottager, who resides in the parish of Denham, near Uxbridge, was from home at his daily work at the time, leaving his wife in charge of hairn, goats, and bees. The wife, being very timid of the bees, and seeing a commotion near the goats, thought the former were swarming upon the latter, and at once sent for the services of the local adviser and expert, who was soon upon the scene. On his way his doubts and fears were roused as to the probability of bees choosing such a situation, knowing the peculiar odour of goats, and at the same time rejoicing to add a little more to his experience. However, on reaching the desired spot, affairs looked different from that of swarming, and certainly the bees had everything their own way, stinging the passers-by, attacking those who came near, but the poor tethered goats seemed to be the special object of their resentment, for they were most vigorously assaulted. No time was lost in releasing them from their uncomfortable position, and most speedily did they rush to their shed, still pursued and attacked by the bees, which were after a few moments 'excluded.' The piteous bleatings of the goats showed that they were suffering intense pain, and on quietness being restored more than a hundred stings were 'extracted,' chiefly from the nostrils, eyes, and ears of one of the unfortunates. The other was not quite so badly attacked. The cottager himself soon returned, and pulled out ninety-six more stings from various parts of their bodies. One goat died before morning, the other still survives, but the bees were disposed of and cleared away within a day or two after the occurrence.

Echoes from the Hives.

Chertsey Grove.—Having noticed through the valuable *Bee Journal* some of the 'Echoes from the Hive,' I may just echo and say that after a long winter and careful feeding I managed to bring all along eleven stocks out of twelve, the one dying from cold or short food, but the others seemed to come on very well until I found one stock was gone, and after examination it proved to be queenless, and the stronger lots had killed off the remaining bees. I removed all bars, cleansed the hive well, and having had a splendid swarm come out on June 9th, have replenished the hive, using the combs that had been deserted, but adding two bars I had saved from last year, and giving two bars fresh with foundation comb. The second swarm came out on the 13th of June, very strong, and from a hive which by weight seems full of honey. On this hive I have put on a super containing ten sections. On examination of another box I found the queen was gone, but there was live brood in the cells. In this box I put the second swarm. This led me to ask the aid and opinion of the Surrey Bee-keepers' Association's expert, who paid me a visit on the 10th, and he expelled all my fears, as I thought it must be foul brood. But there was no appearance of this. I was very glad, as I am very fond of bees, but am not an old hand at keeping them.—R. A. Driver.

Lowestoft, June 14th.—I have been over to my Beecles apiary to-day, and find the bees are doing well, honey coming in fast.—L. Wren.

Odcombe, Ilminster, June 18th.—We have had most glorious bee weather for the past fourteen days, and where hives are strong the bees are rendering a good account of it. I have not experienced such a 'honey flow' during the four years I have kept bees. I have given my bees plenty of room (eleven standard frames in body of hive and twelve of the same size in super); and although the thermometer in my garden has been about 86° each day for more than a week past no swarms have issued since the 5th inst.; in fact, the bees appear to forget the 'swarming fever' in their desire to fill every available space in hive and super with honey. I must be busy with the extractor next week should the weather continue fine.—J. Sarell.

World's End, Newbury, June 20th.—A fortnight of splendid bee weather. Busy with section-crates. Very

few swarms up to date from either skeps or bar-frame hives; large numbers of skeps and a good few bar-frame hives lost in this district during the winter and spring; in some cases spring dwindling has occurred notwithstanding the most vigilant care and attention.—W. Woodley.

Lismore, Ireland, June 16th.—I do not hear of much foul brood about here, and wherever it has appeared I have hitherto been successful in getting the colonies totally destroyed. When bees abound as they do here, I am sure it is better to stamp out at once any sickly stock. I never saw such work in my hives for the time of year. A hive that was working in three section-racks, and had already stored a fair share of honey, swarmed to-day. I will put the swarm on the old stand, following up directions. I have reversed two fine skeps, and will let you know the result by-and-by. We never had such a hot, dry spring, and the white clover is coming in now. All my eleven bar-hives are working in supers, most of them in two and three racks. There have not been many swarms so far, and bees have been very gentle.—F. W. C.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

Inquirer.—*Dry-sugar feeding and dead larvæ.*—I only recently stated that dry sugar left in the hive during winter did more harm than good. It should be unnecessary to repeat that all stores required for winter should be given not later than the end of September. Towards spring dry feeding may be resorted to, in preference to syrup, where any colony has unexpectedly run short. It is not always a sign of starvation when bees are throwing out drone or other larvæ piecemeal. The brood along the lower edges of the combs may become chilled during cold nights, and so be thrown out. Brood may also be injured by improper ventilation and consequent overheating; or, in your correspondent's case, it is quite possible, with such an abundant flow of honey, the bees are removing the larvæ to make room for storing it; the remedy in that case would be to give more sections, or combs, for extracting.

J. B. S.—*Chilled Brood.*—Leave it alone; no harm will arise, and the bees will soon clear it out.

J. S. Lawton.—There is not the slightest cause for apprehension of foul brood being caused by the operation mentioned in your letter.

G. G.—*Transferring.*—About twenty-one days after the first swarming would be a suitable time for transferring.

A. G. R.—1. *Burying Beetle.*—The name of the beetle is *Necrophorus vespillo*, one of the burying beetles. The circumstances under which you found it are common to the tribe. They burrow under dead carcasses of all kinds and there deposit their eggs. It is impossible for it to have any connexion with the death of the bird under which you found it.—2. We should be obliged by your taking the trouble to distribute spare copies of the *Journal*.

F. Musgrove.—*Foul Brood.*—You did very wrong in placing any combs from the affected colony in the new hive. The germs of the disease can be carried on your fingers or clothes; how much more so would they be carried on a comb which had been both built and stored in the diseased hive. The germs of the disease are contained in the honey, and brood fed on such honey will assuredly become affected. We should strongly advise you, as you have only one colony, to destroy bees, combs, and frames, and start afresh, after thoroughly washing out both the hives with a strong solution of carbolic acid, then allowing them to dry, afterwards exposing to the air to get rid of the smell. This plan, without doubt, is the most satisfactory and inexpensive.

F. W. C.—*Queen.*—The queen has not reached us alive she was drowned in the honey which had exuded from the piece of new comb. There was no perceptible appearance of the external feature you note. The honey from the new comb was of a delicious flavour. The old comb contained chilled brood.

H. F.—We are pleased to hear that your erratic bees have at last settled down. Yours has been a singular experience.

W. T. C.—*Bees changing Queens.*—From your description of your bees lying and clustering about the hive, halting and sluggish in their work, we should conceive that they are superseding their queen. Leave the hive and bees as they are, and wait for result.

A Learner.—*Returning Swarms.*—Swarming cannot be absolutely prevented, but its probability may be minimised. When swarms leave supered stocks, bee-keepers desirous of honey-getting return them in the evening after having cut away the queen-cells from the stock hive. In the case of stocks supered after first swarms have issued, the returning at night of second swarms is generally sufficient, as the young princesses heading the latter will be almost sure to engage in royal combat with their sisters in the hive, and in the morning there will be only one regal survivor.

Miss Daly.—*Fighting.*—Fighting and robbing generally accompany each other, and should be prevented by every possible means. It seldom happens between strong stocks, but is generally carried on against weak and ill-provided hives, and is often induced by carelessness in feeding. Spilling syrup or leaving honey about the hives creates a spirit of cupidity amongst foragers, and the scent from the outside having attracted them, they find their way into the interior, and the destruction of the hive is imminent if the bee-master does not take means to prevent the result. Narrow the entrances, passage for the ingress and egress of two bees being for the time sufficient; or exchange the positions of the hives of the robbed and the robbers—this will nonplus the latter, and generally the fighting and the robbing will cease.

E. Sampson.—A very full description of the Stewarton hive will be found in *The Stewarton; the Hive for the Busy Man:* London, 1881. By the Rev. E. Bartrum, D.D.

Received a very nice sample of this season's honey as regards colour, consistency, and aroma. This is the first we have seen this year in London, and is produced by Mr. D. A. Thomas, of Sevenoaks.

Received from Mr. H. W. West, of Stanmore, Bishops Waltham, schedule of prizes of show-honey, bees, &c., to be held in connexion with the Show of the Bishops Waltham Horticultural Society at Holm Oak, Bishops Waltham, on July 27th.

Correction.—The last paragraph but three in my letter (1009) ought to be as follows:—'It will take either two tiers of frames, twelve in each tier, or twelve frames and two tiers of sections, without any alteration to the hive.' I may further say that we give a sheet of one-ply Willesden paper all over roof and then paint.—F. F. McKenzie, *The Warren, Loughton, Essex, June 16th.*

Show Announcements.

Giving Name and Address of Secretary, Date and Place of Show, Date of Closing Entries. Terms: Three Insertions and under, Two Shillings and Sixpence; additional insertions, Sixpence each. No charge made to Associations whose Shows are announced in our general Advertising Columns.

June 23, 24.—Suffolk Agricultural Show at Bury St. Edmunds. Entries close June 6. J. Huckle, Secretary.

July 11-15.—Royal Agricultural Show at Newcastle-on-Tyne. Post entries to June 1st. J. Huckle, Kings Langley.

July 14.—Oxfordshire Association at Headington. Hon. Sec., Rev. F. C. Dillon, Enstone.

July 21.—Prescot Horticultural Show. R. Rigby, Secretary, Station Road, Prescot, Lancashire.

July 20-22.—Lincolnshire Agricultural Society at Spalding. Entries close July 4. R. R. Godfrey, Secretary.

July 26-28.—Gloucestershire Agricultural Show at Cheltenham. Entries close July 12. W. D. Slade, Sec.

July 26, 27.—Warwick Agricultural Society at Sutton Coldfield. J. N. Bower, Secretary.

July 27.—Bishops Waltham Show. (Hants and Isle of Wight Association.) H. W. West, Hon. Sec., Swanmore House, Bishops Waltham.

August 3-5.—Yorkshire Agricultural Society at York. Secretary, H. L. Rickards, Poole, near Leeds.

August 9, 10.—Irish Bee-keepers' Association at Salthill Gardens, near Dublin. Entries close August 2. Hon. Sec., Henry Chenevix, Blackrock, Dublin.

August 14.—Handbridge, Chester St. Mary's Horticultural Show. W. E. Little, Hon. Secretary, Eastgate Row, Chester.

August 24.—Lancaster Agricultural Show. W. Liddell, Hon. Secretary, Dale Street, Lancaster.

August 31-Sept. 3.—Royal Manchester and Liverpool Agricultural Show at Manchester. W. Lees McClure, Hon. Secretary, The Lathoms, Prescot, Lancashire.

Business Directory.

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The Entries close on Saturday, June 25th.

Prize Lists and Forms of Entry for Stock, Bee Appliances, and Implements, will be forwarded on application to Marshall Stephenson, Secretary. 176

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With this appliance, frames can be removed from hive. Examined on both sides and replaced without inverting, and with one hand only, leaving the other free to perform any manipulation, at the same time preventing the soiling of hands with propolis. **1s. 6d.** each. Postage **3d.**

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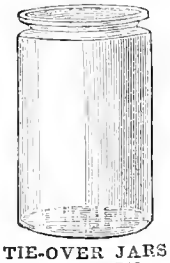

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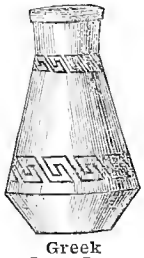

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Set of Six, with Dividers for 21 Sections, 1/6.
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For Countries out of Europe add 50 % to above prices.

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☞ My Queens are all very prolific, long-lived, and much larger-bodied, than the majority of those supplied by others, as they are reared naturally, under the swarming impulse, in April, May, and June, from the strongest of my forty colonies of Bees kept in double-walled moveable frame-hives, and all having choice Queens, which produce workers so gentle that they can be handled without smoke, and even without a veil on the face, just as I do myself (see Mr. S. Simmins' statements on page 37 of his work entitled, *A New Era in Modern Bee-keeping*). This is principally owing to the fact that I have weeded out from my Apiary all such Queens which appeared to be weak or producing troublesome workers. Address—

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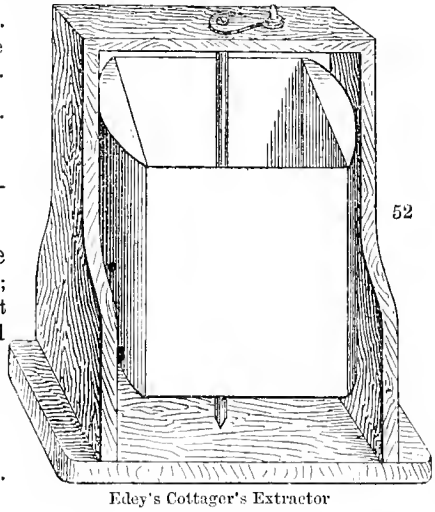

52

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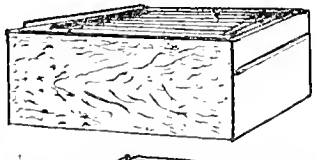

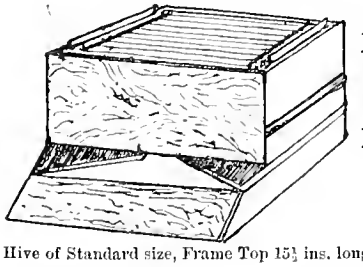

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THE BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, Cambridge Circus, W.C.'

[No. 262. VOL. XV.] JUNE 30, 1887. [PUBLISHED WEEKLY.]

Editorial, Notices, &c.

A NEW HONEY BEVERAGE.

It is very pleasing to note the increasing number of those who are cultivating bee-keeping as a pursuit either for pleasure or for profit. The number of bee-keepers is rapidly advancing year by year. Great perfection is being arrived at in the construction of hives and in the manufacture of bee-appliances; and attention is being directed in a greater degree to the cultivation of honey-yielding flowers and plants. The result of this is that a larger amount of honey is annually produced throughout the kingdom, and the honey so produced is of superior flavour and quality. The burden that rests heavily on the mind of many bee-keepers is, In what manner can we utilise our increased yield of honey? Is the demand increasing proportionately to the enlarged supply? These questions require a reply.

During the past few years considerable advance has been made in increasing the number of outlets for the utilisation of honey. It is but right that we as bee-keepers should acknowledge and express our indebtedness to various gentlemen connected with the Berks B.K.A. for the great interest and inventive ingenuity that they have displayed in furthering this object. In this connexion we are pleased especially to recognise the services of, and the active part taken by, the Rev. V. H. Moyle, of Ashhampstead Vicarage, looking upon him as we do as the principal agent in stimulating those in his vicinity to bestow their attention in this direction. In reply to a communication, Mr. Moyle some time ago informed us that he was engaged in compiling a pamphlet setting forth the various utilities of honey. This pamphlet has not yet reached us, and we presume that it has not been published. Some such pamphlet is a great desideratum; and we consider that no one is more competent than Mr. Moyle to produce it, he having for many years devoted much time and attention to the consideration of this subject. Messrs. Huntly and Palmer of Reading have consumed much honey in their well-known Honey Drop Biscuits. Messrs. Blatch of Theale, with their honey beverages; Mr. George, of Reading, with his confectionery; Mr. G. E. Darvil, with his sweetmeats of all kinds, containing a large proportion of *bonâ-fide* honey; Mr. Thomas, with his honey toilet preparations; Messrs. Cross, with their various methods of applying honey in medicinal and pharmaceutical preparations, have done much towards popularising the use of honey. Besides these, Messrs. Fry and Sons, of Bristol, have produced very nice honey chocolate tablets and creams; Messrs. Fry's (of Bishop's Waltham) honey beverages, champagnes, syrups, and cordials, are well known; and our friend, Mr. W. N. Griffin, of Freshford, Bath, has invented a dubbin in which honey is an ingredient and which has been highly spoken of as a preservative of leather.

Much of the honey collected in the British Isles is especially adapted for being utilised in various articles of food, beverages, confectionery, sweets, medicines, &c., possessing as it does an exquisite flavour and aroma; and in this respect we may claim that it possesses considerable superiority over foreign honeys. It is of primary importance that bee-keepers, and all others interested in the promotion of bee-culture, should direct their attention to the increase of such manufactures, as by so doing they would create an increased demand for their own produce. The fact cannot be brought too prominently before the British public that honey is not only of good service in its old form of 'bread and honey,' but that it can be applied to manifold medicinal and sanitary purposes; that it is far superior to its younger rival, sugar; and that the more varied its applications the better for the honey industry generally.

The British Honey Company, Limited,—who in their progress have had many difficulties to overcome and much uphill work to accomplish,—have devoted much thought and attention to this matter; and after a series of experiments have succeeded in producing from British honey and fruits a beverage, which, whilst retaining the flavour of honey in a marked degree, is quite free from the viscous properties noticeable in many of the honey beverages which have been brought before the public. The new beverage is termed 'Mella,' and, while of a highly effervescent character, is non-intoxicating. The taste of the honey is perfectly distinguishable when drinking it. It is prepared for the market with the aid of the most approved machinery; and, we are informed, it is intended to be retailed at a low price, thus bringing it within the reach of all

classes. We advise all our readers to give this beverage a fair trial.

We congratulate the British Honey Company on this success; and we trust that they will continue to be found in the forefront of those who are catering for the public in the various modes which may be adopted for the utilisation of honey.

YORK SHOW.

We beg to remind intending exhibitors that late entries will be received up to July 2nd upon payment of extra fees. See advertisement.

MANAGEMENT OF BEES FOR PROFIT.*

By L. Wren, *Hon. Secretary of the Lowestoft Bee-keepers' Association.*

Mr. Chairman, ladies, and gentlemen, during the short time I may occupy your attention it is my intention to speak upon the practical side of bee-keeping. My desire is to open the way for a discussion upon the subject, with a few remarks culled from experience, gained, not only in my own apiary, but also from numerous visits made to successful and non-successful bee-keepers. I have carefully watched and noted the causes which have led in the one case to success, and in the other to failure.

How and When to Commence.

The question is often asked, How shall I commence, and when is the best time? If a person has a knowledge of bee-keeping, and desires to spend as little money as possible, then I should say the autumn, because cottagers' bees can be had for the trouble of driving, &c., and sugar being cheap they can be fed up for the winter at a small cost. But to winter bees some experience is necessary; therefore it is not safe for a novice to begin in the autumn, except he has a practical friend to give him some assistance. The next best plan, so far as outlay is concerned, would be to procure an early swarm, not at all times an easy matter. If the season is good it will doubtless give some surplus; still I think I may safely say that not more than one swarm in twenty will give the owner any surplus the first year. If you are not limited in means, then by far the most profitable way is to commence in the spring with a good stock on seven well-built combs. I have sent out such stocks, which have given sufficient surplus the first year to pay for hive, stock, and the necessary appliances required.

Caution to Beginners.

Many who commence bee-keeping soon give it up. I advise starting with one stock, and not launch out further until it has paid all costs. Such advice is worth but little, for I often find the young bee-keeper with five or six hives before the end of the summer. An experienced apiarist would put two or three stocks into one hive; but that would never do for our young beginner. His stocks are often weak, and the following summer they do nothing; he is disheartened, and sells out at a considerable sacrifice, declaring bee-keeping does not pay. No, it never will in the hands of such persons. The amateur needs caution. There is a tendency to spend money upon useless articles. I am satisfied that the necessary appliances for successful bee-keeping could be printed on one or two pages of note-paper, and yet we see catalogues advertised of sixty or seventy pages with 100 illustrations. When the tyro receives such a catalogue he fancies the more he can purchase the greater will be his success, whereas a practical bee-keeper that works for profit buys but few fancy articles.

Shows.

Shows are not an unmixed benefit to the novice. True, he may learn a little, and get some useful hints in the bee-tent; but when he goes to the appliance department he is bewildered—he had no idea so many things were required. He endeavours to gain information by making inquiries for what purposes the various articles are used. Of course the vendor is there to do business, and the enterprising bee-keeper purchases a few articles such as none of his neighbours possess. By the time he leaves he has secured a drone-trap, the latest novelty in the shape of a queen-cage, transferring rack, &c., spending 20*s.* or 30*s.* over articles that are not worth a cent to him. He has bought some experience, but paid too high a price for it.

Modern Hives are Essential.

Unfortunately most of our best books upon bee-keeping are written by gentlemen who have a liberal supply of that useful commodity called money; consequently the majority of the hives illustrated are expensive, and some complicated. I would say, adopt the most simple hive that can be made—only it should be well made and painted to stand the weather and keep the bees dry; above all things it should be easy to manipulate. Don't attempt to put bees into a box which will not keep out the rain. I consider a good, sound hive a profitable investment. Always see that the floor-boards are tongued. It should also be capable of expansion for the summer to prevent swarming, and all the bars of one size. I consider reversible or invertible hives or frames require too much time for the average bee-keeper. I have a hive here which I shall be pleased to explain at the close of the meeting. It may assist some of the members in making or altering their present hives.

Bees and Queens must not be Overlooked.

I do not advise the beginner to speculate in expensive bees, but to rest satisfied with the English until he has gained some experience. The native bees, well managed, will give very fair results, though I have not found them equal to the Ligurian or hybrids; neither do I advise the buying of a number of imported queens. It will pay to purchase one occasionally to improve your stock. I find queens raised at home from good stock are worth double the money for work, and last longer, than any imported queen I ever bought. Whatever race of bees you keep, it is essential that stocks be strong. If you have weak stocks in April, it will pay to unite two, or even three, if very weak. It is not wise to unite too early in the year. Providing each stock has a fertile queen, some persons can hardly believe it possible to get a stock to cover twenty frames by the time honey is coming in. It can be done; and such a stock, if you prevent it swarming, will be certain to render a good account of itself when the results of the season are summed up. To bring an average stock up to that strength, get them to rear all the young bees possible before May. When the honey is coming, confine your queen to seven or eight bars, put on supers, or extra body-boxes. To succeed you must have good queens. Last year I had one stock that made no progress. On July 26th the bees did not cover six frames, and there was scarcely any honey in the hive. I killed the queen, and two days later inserted a Ligurian queen, reared in June. I examined the hive on September 16th (that would be seven weeks after the young queen was introduced) when I found ten frames covered with bees, and more honey than they required for the winter; and I would also add that between August 5th and September 16th, five Ligurian and Ligurian-hybrid stocks gave me 100 lbs. of extracted honey; but the English standing in the same garden gathered no surplus during that time. I do not recommend these bees for trade purposes because I do not profess to sell queens.

* A paper read at the annual meeting of the Lowestoft Bee-keepers' Association, May 5th, 1887.

Locality.

Much depends on locality, both for quantity and quality of honey. I would prefer a district where you are not dependent upon one kind of plant or flower, no matter how rich it may be in honey. If the weather should prove unfavourable just at the time it is in flower, the harvest is lost. To ensure success a variety is necessary, and such as will follow each other. If the season is good, bees will give a surplus in almost any locality. Still, some districts are much better than others, principally because of the greater variety of flowers, &c. I have known bees give 40 to 60 lbs. extra by moving them from one district to another in the same county.

Preparation for the Honey Harvest.

In my visits to apiaries of customers and friends I find some rejoicing over their success, and others complaining that bee-keeping does not pay. On inquiry, I find he who succeeds gives attention, and at the proper time; sections and doubling-boxes are on ready for the harvest. The unsuccessful one leaves the bees to take care of themselves. My advice is, Have everything ready before they are wanted, and give bees the necessary attention when required. Bees set us a good example. They do not put off until to-morrow what can be done to-day. If bee-keeping is to be profitable, it must have the same thought, care, and attention, we give to other matters of business.

Prevention of Swarming.

To secure a good harvest you must prevent swarming. Although I average from thirty to forty stocks, I have not been troubled with a swarm from a bar-framed hive for the last three years, except from a hive that was neglected. Last year I had stocks covering twenty frames and filling sections. Bee-keepers may adopt somewhat different methods for the prevention of swarming, but the principle is the same, *i.e.*, giving plenty of room for work before the bees have a desire to swarm. I have tried different arrangements according to the hive. If the body-box holds only ten frames, just before swarming time I take out three frames with brood, moving the remaining seven bars towards the back, placing three empty frames in front with narrow guides, not more than one row of cells exposed, putting on an extra body-box, placing the three frames of brood in the centre of extra box and filling up with empty combs, adding a crate of sections on the top. If the hive will hold sixteen frames I work it rather differently. If the bees cover most, or all the bars, I take away three or four from the front, putting in empty frames as before. I leave seven or eight for the brood-nest, then a queen-excluder, and behind it five frames for extracting, and a crate of twenty-one sections on the top, leaving the three bars in front uncovered. The bees can then cluster up the front of the crate if the night is hot. The crates can be tiered if required, and the bars at the back can be extracted as filled. If the bees should fill the front bars with comb, take them away and give empty ones in their place. If the hive will hold only ten frames, and the queen is very prolific, then a shallow box filled with narrow frames containing only guides placed under the body-box is a safe preventative, adding sections on body-boxes as before. The same arrangement will prevent a skep swarming.

Taking Honey

Is a pleasure to the bee-keeper, and if you desire good coloured sections for sale they must be taken away about once a-week, putting those partially filled to the centre, placing the empty ones outside. If honey is coming in rapidly a strong stock will generally fill twenty-one so quickly that they can all be taken off at the same time. When one crate is partially filled place a second underneath the first. When honey is falling take away the full sections and keep the unfinished in close quarters, otherwise many will be left only half filled. I find it does not pay so well to work for sections after the best of the season is over; they are filled too slowly to look well. If other duties demand so much of your time in summer that you cannot give attention to the bees, proceed to prevent swarming, letting them have plenty of room according to their strength. A very strong stock to be left all the season should have at least twenty frames and fifty or sixty lb. sections. The honey then could all be taken at the close of the season. There is one advantage in this plan of procedure—the honey is well ripened.

Marketing Honey.

Retailing, as I do, about half a ton of honey during the year, I have gained some knowledge of what best suits the retail customers. Appearance goes a long way with the general public. I often notice in offering two sections of the same weight and quality of honey, the average buyer will give twopence more for the best in general appearance. When I speak of general appearance I mean not only a white, well-filled comb, but a clean section. It is a great mistake to use old dirty sections when new ones are so cheap. The 1-lb. section is more saleable than the 2 lbs., I should say one hundred to one; therefore, if you desire to sell your sections do not use the 2-lb. size. The same remark applies to extracted honey. It will sell better if the colour is good, the bottle nicely tied down, and a bright label on; a tumbler to hold halfslb. sells readily at sixpence. When empty the tumbler is more useful than a bottle. The 2-lb. bottles are a slow sale. Two-lb. tins sell to those who have to carry honey a great distance. I advise all bee-keepers to retail their honey among their friends. It will bring a larger profit. Several who have tried it have been surprised by the large profits they have received by adopting this plan. You must not sell the single section or bottle at the same price you do wholesale quantities. In the one case you perhaps sell one or two cwts. at once; in the other, you call on sixty or seventy people to sell the same weight. Remember, also, the trader cannot pay rent, rates, taxes, assistants, &c., except he makes a profit. When I commenced selling honey I bought principally of my customers, but have been compelled to produce it with my own bees, for two reasons, viz., the supply was so uncertain, and some will sell their best sections at 10*d.* or 1*s.* retail, and when they had sold all they could they brought the worst to me, and expected the same price, 10*s.* or 12*s.* per dozen. They thus brought down the price and supplied me with an article of lower quality, compelling me to offer them a lower price than I had previously given. If one desires to sell their extracted honey wholesale it must not be bottled, it costs too much for carriage, and often several of the bottles come to hand broken. The wholesale buyer will generally send cans for what you have to sell. If your honey is in sections have them nicely cleaned. When sending in sections gentlemen often write stating they were too busy to clean them; therefore the buyer has to pay some one to do the work. He dared not trust any one to do it, otherwise many would be spoilt. Time is money, and to have five or six dozen of dirty sections come to hand just at the time when one is going from fourteen to seventeen hours per day to keep up with the pressing wants is no joke. At such a time, if two lots were offered, one clean and fit for sale and the other with the propolis left on, I take the clean and return the other. I do not think we shall see good English honey any lower in price than it is at present. Still I am satisfied that a person living in the country, where he has no extra rent to pay for standing his bees, can make them pay even if he sold his honey at sixpence per pound, but the bees must have attention. Persons are willing to feed their pigs two or three times a-day, but bees are expected to manage themselves, except when they swarm and the honey is ready for taking away. Do not force

your honey into the market when it is full. Extracted honey will keep for years, and sections can be kept good for two years. Honey will generally make a better price in November and December than in August.

Preparing for Winter.

I believe the success of the summer depends very much upon the attention given to the bees in the autumn. It is very essential there should be plenty of bees in each hive. By no means attempt to winter a weak stock. It is also of the utmost importance that each stock has a good supply of food. I consider nothing is equal to good honey for wintering bees, and if you do leave ten pounds or fifteen pounds more than they may require for the winter you will be compensated during the following summer. Failing natural stores then good sugar in the form of syrup is the next best. By no means give bad honey in the autumn, save that for the spring feeding. I find the loss of bees during winter and spring is greater after such summers as 1885, when so much dark (almost black) honey was stored by the bees. If feeding is necessary it should if possible be completed by the end of September; still, it is possible to feed up a stock much later if necessary. On the 18th October last I drove two lots of cottagers' bees rather than he should burn them. As my other bees were packed for winter I had no desire to disturb them by uniting the two lots with them. I therefore put them in a hive, giving them combs from which honey had been extracted. They stored over twenty pounds of sugar made into syrup in about ten days. So far they have passed through the winter well. Not only do I advise packing early, but if you are satisfied they have plenty of food do not disturb them till February, except they have dysentery. The less bees are pulled about the better. I have briefly touched the points I think of most importance in the management of bees for profit, and I trust the bee-keepers present will supplement it by their own experience, and that such information may assist us in making this year one of the best we have known for profit. I shall be pleased to answer any questions or give any further information I can.

GREECE.

It is reported, on the authority of the *Apicoltore* of Milan, that George I., King of Greece, with a view to remind his subjects of the prosperous condition of bee-keeping in former days, is writing a book on the bees of Mount Hymettus. It is added that the book is so far advanced that it will be ready for the press very shortly.

WILTS BEE-KEEPERS' ASSOCIATION.

The first show of the season was held at Swindon on June 15th and 16th, in connexion with the annual show of the Wilts Agricultural Association. The time, of course, was too early for any new honey to be exhibited, but there was a good display of hives and all necessaries for the apiary.

Owing to the large number of entries for the Agricultural Show, the bee-tent unfortunately was hidden away behind the implements, in a field adjoining the show-yard, and so was found with difficulty even by the members of the Association, the result being a loss of nearly 8*l.* to Wilts B.K.A., but it is hoped that this will be paid by the Committee of the Agricultural Show. The management of the bee-show devolved entirely on the Rev. W. E. Burkitt, Hon. Secretary and expert, assisted in the tent by Mrs. Currey, of Reading, Mr. W. N. Griffin, of Freshford, Bath, and Mr. J. E. Whatley, of Blunsdon, who kindly provided bees for driving. The exhibition comprised all the necessaries for a beginner in apiculture. Some good hives were exhibited by Messrs. Abbott, of Southall, and Messrs. Neighbour and Sons, of London, exhibited their ingenious frames and sections, which can be put together without nailing, the comb-foundation, to ensure the building of straight combs, being inserted at the time the hives are made. Mr. Griffin exhibited his now celebrated dubbin, which has been so highly spoken of, and which was recently awarded a special prize for excellence at the Devon Agricultural Show; here Mr. Griffin was awarded a first prize. Messrs. Fry and Sons, of Bishop's Waltham, sent various kinds of honey drinks; and some new section-boxes were exhibited by Mr. Woodley, of Reading; the latter receiving a first prize. Mr. Baker, of Muskham, displayed some neat section-boxes for the carriage of about one and two-lb. bottles of honey. In a small collection exhibited by Mr. Burkitt were some useful adjuncts of the apiary, as well as an observatory hive stocked with bees. During the two days of the Show manipulations with live bees were conducted at intervals, showing the various processes of bee-management, such as driving bees, and transferring combs from one hive to another, the operations demonstrating how quiet bees will remain under proper management. The enclosure where these operations were carried on was, however, protected by a net, as a safeguard to the public. Lectures were also delivered, and various questions put by those interested in keeping bees were answered. The judges were Mrs. Currey and Mr. W. N. Griffin, and their awards were as follow:—Hives, price 15*s.*: 1, C. E. Payne, Yeovil. Buttermere skep crate: 1, W. E. Burkitt. Extractors, price 1*l.* 1*s.*: 1, Baker, late Walton; ditto, h.c., price 15*s.* Collection of bee-furniture: J. Abbott; special, W. E. Burkitt. Straw skeps: 1, H. Huish, Patney. Special for travelling section-crate: Abbott. Special prize for new frames and sections filled without nails; Neighbour and Sons. Honey dubbin: 1, W. N. Griffin. Special for honey drinks: Fry and Co., Bishop's Waltham. Section-boxes: 1, A. D. Woodley. Baskets for honey-bottles: h.c., Baker.

THE ROYAL COUNTIES AGRICULTURAL SHOW AT READING.

The Berks and Hants Bee-keepers' Association held their exhibition in conjunction with the Royal Counties Agricultural Show at Reading on the 20th, 21st, 22nd, and 23rd of June. The weather was particularly fine; the town was decorated with flags, banners, and illuminations, to celebrate the double event of the Queen's Jubilee and the visit of the Agricultural Society.

The Berks and Hants Bee-keepers occupied a large tent, near the entrance, in which there was a good display of hives and appliances, honey, and also of honey sweetmeats and other manufactures in which honey was used.

The prize schedule consisted of twenty-five classes, in which there were 119 entries.

Class 1 (open to all England).—For the best 24 lbs. of super honey, 1, Hants B.K.A. silver medal, W. Woodley, World's End. Class 2.—For pure extracted honey put up in the most attractive mode for purposes of sale, 1, J. J. Candey, Landport; 2, W. Woodley; 3, H. Cobb, Dorchester. Class 3.—For the best design in honey-comb worked by the bees, 1, W. Woodley; 2, J. J. Candey; 3, A. D. Woodley. Class 4.—For the largest and best collection of appliances applicable to modern bee-keeping, 1, Abbott Bros.; 2, S. J. Baldwin. Class 5.—For the best observatory hive stocked with bees and queen, 1, W. B. Baker, Muskham. Class 6.—For the best Ligurian, Carniolan, Syrian, or Cyprian queen-bee, to be exhibited alive and visible with her workers, 1, S. J. Baldwin; 2, Abbott Bros. Class 7.—For the best bar-frame hive, price not to exceed 30*s.*, 1, Abbott Bros.; 2, S. J. Baldwin; 3, A. D. Woodley. Class 8.—Ditto, price not to exceed 20*s.*, 1, Abbott Bros.; 2, S. J. Baldwin; 3, A. D. Woodley. Class 9.—For the best cottager's hive, price not to exceed 10*s.* 6*d.*, 1, W. B. Baker; 2, S. J. Baldwin; 3, Abbott Bros. and A. D. Woodley, equals. Class 10.—For the best honey extractor, 1, Berks B.K.A.

silver medal, Abbott Bros. Class 11.—For the best section-rack prepared for putting on the hive, 1, Abbott Bros.; 2, A. D. Woodley. Class 13.—For any recent invention calculated to be of use to the bee-keeping industry, 1, Hants B.K.A. silver medal, A. D. Woodley. Class 14.—For the best collection of honey applied as food and confectionery. 1st prize, Hants B.K.A. silver medal, G. E. Darvil, Reading. Class 15.—For the best general collection of honey and wax in other applied forms. 1st prize, Berks B.K.A. silver medal, W. N. Griffin, Freshford. Class 16.—For the best collection of bee-flora (natural or dried). 1st prize, Hants B.K.A. silver medal, Miss H. C. Myers, Swanmore. Class 17 (open to members residing in Hants and Berks, or within three miles of the boundary lines).—For the best 12 lbs. of super honey, in sections not exceeding 2 lbs. each. 1st prize, Berks B.K.A. silver medal, H. W. West, Swanmore; 2nd prize, bronze medal, H. Cobb, Dorchester; 3rd prize, certificate, A. L. Cooper, Reading. Class 18.—For the best 12 lbs. of super honey, in sections not exceeding 2 lbs. each. Cottagers and artisans only, 1, Mrs. J. Cobb. Class 19.—For the best 12 lbs. of super honey, in sections not exceeding 1 lb. each, 1, W. Woodley; 2, H. Cobb; 3, A. D. Woodley. Class 20.—For the best 12 lbs. of super honey, in sections not exceeding 1 lb. each. Cottagers and artisans only, 1, Mrs. J. Cobb; 2, Jas. Welch, Chilton. Class 21.—For the best 12 lbs. of extracted honey, in 1 lb. or 2 lb. vessels, 1, H. Cobb, Dorchester; 2, H. Fewtrell, Reading; 3, J. J. Candey. Class 22.—For the best 12 lbs. of extracted honey, in 1 lb. or 2 lb. vessels. Cottagers and artisans only, 1, Mrs. J. Cobb; 2, Wm. Webster, Reading. Class 23.—For the best super of honey (not in sections), exceeding 10 lbs. weight, 1, W. Woodley. Class 24.—For the best sample of bees-wax, weighing not less than 2 lbs., 1, W. Woodley; 2, W. Burgiss, Hinton; 3, Mrs. S. Burgiss, Hinton. Class 25.—For the best home-made hive, the work of an amateur. 1st prize, Berks B.K.A. silver medal, A. E. Fry, Reading; 2nd prize, bronze medal, H. Fewtrell; 3rd prize, certificate, A. H. Miller, Egham.

Considering the lateness of the honey-flow the exhibition of comb-honey was very good. Mr. W. Woodley, of World's End, Newbury, had a fine lot of honey in the different classes, his large supers and his designs in honey-comb were very good, and show his skill as a bee-master. In one of the classes for extracted honey, an exhibit of fine colour and good consistency had a peculiar flavour of meal or malt, which, although not disagreeable, was so unnatural to honey that it lost the first position, which it would otherwise have obtained. Many were the suggestions as to the cause; it was thought it arose from artificial pollen having been fed the bees, some of which might not have been consumed, and that the cells containing it being only partly filled were used for honey. It transpired that the honey had been heated in a vessel.

In the hives, Class 7, that of Messrs. Abbott Bros. was a well-made hive containing twelve wide-ended frames in the body box running parallel to the entrance, with dummy and space at back for manipulating, a second hive also containing twelve frames and dummy for storifying. This top hive had moveable supports for the frames, and on their removal could be inverted to form an outside cover for the stock hive, after the method invented by Mr. James Lee, and now used in Messrs. Neighbour's Sandringham hive. In order to secure the sides and ends of hive a small angular L-shaped brass plate is nailed on the corners, and makes a neat and firm pole. The frames are made on Abbott's patented principle. A sheet of perforated zinc is provided to keep the queen in the stock hive. The floor, with legs, and the roof, are well and carefully put together.

The second prize hive, Mr. Baldwin's, is also a double hive, each containing twelve frames, with Carr ends to keep the distance, parallel to the entrance, with dummies, zinc-excluder, floor-boards, and roof.

In Class 8, Messrs. Abbott's hive consists of three bases, each containing ten patent frames and dummy, floor-board without legs, and roof similar to the 'Gayton' hive—a very good model for a hive.

Mr. A. D. Woodley's hive is a shallow hive of four storeys, each containing hanging frames; in the two upper boxes the frames contain sections, but are capable of being used as ordinary frames when working for extracted honey. Some slight modifications would make this a useful hive. Many of the sections were exhibited in Mr. A. D. Woodley's enamelled glazed cases, which are a great improvement on the paper boxes, as they can be washed and used again and again for exhibition purposes. A silver medal was awarded him for his new invention.

The judges were the Revs. W. E. Burkitt, F. Sclater, Dr. Andrews, Messrs. E. H. Bellairs, Evan Maberly, and J. M. Hooker.

Mr. J. M. Hooker was the examiner of experts appointed by the B.B.K.A.

Mrs. Currey, of Reading, presided at the sale counter; Mr. Fewtrell lectured and manipulated in the Bee-tent; and Mr. Darvill, of Reading, showed the different processes in the manufacture of various kinds of confectionery.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *King's Langley, Herts (see 2nd page of Advertisements).*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

A BEE TOUR IN THE NORTH OF ENGLAND BY W. B. WEBSTER.

A LANCASHIRE BEE-CELLAR.

[1132.] Mr. McClure, with his usual forethought, thinking that I should like to explore all the places of note having any connexion with bee-keeping, had previously written Mr. Greenhalgh, of Hermitage Green, asking permission to look over his apiary, received a cordial reply in return, and he also kindly promised to meet us at the railway station; so that the Monday morning saw us alight from the Liverpool express, and were presently greeted by one who, at the first glance, I would 'dub' a Colonial. With a hearty shake of the hand we were quickly installed in Mr. Greenhalgh's trap and on the road to his house, which, after a pleasant two and a half miles' drive, we reached.

Having seen to the safety of the horse we walked to the apiary. Here the hives were dotted about in a young apple orchard, and quite a lively appearance they presented. All were in Langstroth hives, sloping from back to front, so that the combs were quite at an angle in the hive. Having inspected these, which I found in an exceptionally prosperous condition, our attention was next attracted by what appeared to be the roof of a house poking above the ground; this was the roof of the bee-cellar. It was formed in the sandstone. A space, after much labour, had been dug out of the solid stone, to the depth of 5 feet; this, no doubt, was a rather stupendous undertaking, and no doubt required a vast amount of perseverance, as it measured 16 feet by 7 feet. Upon the edges of this hole a double wall had been built to the height of 18 inches, and upon this was laid a double gabled roof, which was formed first by laying 1-inch spruce boards filleted and tarred; upon this 4 inches of sawdust, and over this the roof proper of 1-inch

spruce filleted and tarred. Sand was piled up from the level of the ground to this roof, 18 inches. The ends were treated in the same manner. A flight of seven steps took us down to the entrance. A couple of ventilators, one at each end under the eaves, were found to be more than sufficient. A bent tube prevented any light from entering these ventilators. There was no sub-earth ventilation. What temperature, I first asked, did you register? Mr. Greenhalgh informed me that in no instance during the past winter did the thermometer fall below 40° Fahr., and never reached higher than 42° Fahr. On one day it registered 15° Fahr. below freezing outside, whilst inside it was at 42° Fahr.

The hives were piled up in tiers, each tier breaking joint with the one underneath, a space of two inches intervening between each tier. Each hive had its entrance wide open, but covered with strips of perforated zinc. A single quilt of coarse sacking (American flour-bags) covered the frames. One colony, on being placed in the cellar with roof and ordinary quilts on, showed evident signs of suffocation, which, upon removal of roof and alteration of quilts, quickly recovered. An ordinary paraffin lamp raised the temperature two degrees, but there was found no necessity for continuing it.

The nature of the ground—sandstone—being of such a dry character, dampness was no trouble; in fact, when I viewed it, everything was as 'dry as a bone.'

The bees were placed in at the commencement of November, and taken out in February. All but one were allowed to fly in January, and returned; but the necessity of this was not apparent. Their weight was scarcely diminished at all; very slight evacuations were noticed. The one hive not allowed a fly presented no difference to the others. A nucleus colony on only one frame, but having two empty ones, one on each side, was successfully wintered, and when I saw it at the end of May was in a very prosperous condition, covering, I think, five frames. Here we find a great success scored; not a single colony lost, and no traces of dysentery.

The cellar forms a capital honey house, and was used in early spring, after removal of bees, as a rhubarb forcing-house. A mushroom bed was in an evident flourishing condition when I was there.

WATER FOR BEES.

[1133.] Water being a necessity to bees, the methods adopted of furnishing an artificial supply is worthy of notice. I have just read in the *American Bee Journal* a communication from Mr. C. H. Dibbern of an excellent method of supplying this necessary, that, with your permission, I think is worth quoting.

'Set a barrel on a sack spread over a box, and put a pailful or two of water in every morning. Bore a gimlet hole in the barrel near the bottom, and allow the water to drip out on the sack, which should be kept wet all day. Occasionally throw in a handful of salt, as the bees seem to require it, and will keep the water pure and sweet.'

I may be allowed to add a caution as to using salt; bees undoubtedly require it, but I should say in very limited quantities. Two barrels in use would be advisable, in one a small percentage of salt may be added to the water, and the other without the addition of salt.

While on this subject I should like to add a note of warning. Several instances having come under my notice of wooden tubs filled with water, and placed in the sun to have its temperature raised for the purpose of watering plants, &c., capillary attraction taking place at the sides of the tub is just the point our favourites delight to sip the moisture, and in taking flight from such positions they more than frequently take a gentle swoop downwards, are caught by the treacherous water with fatal results to hundreds of bees in the course of a week.—James Lee.

BEES INJURING RIPE FRUIT.

[1134.] I trust during the ensuing fruit season further light will be thrown on this subject raised by Mr. Webster at the late Conversazione, and the discussion on the same subject in the pages of the *Bee Journal*. When I have been asked to express an opinion I have given a decided 'No' to the question, and I cannot but think it is only in very few and isolated cases that bees are seen attacking fruit, and then let us hope only after wasps have paved the way by piercing the skin.

The strength of the wasp's jaw is amazing, and a simple proof, after catching a specimen and applying a light pressure to its body, is to insert a human hair between its jaws; it is instantly nipped asunder with a noise plainly to be heard. They are, besides, an extremely voracious race of insects, feeding, as is well known, indiscriminately on fruit and animal matter, and the way they oftentimes treat the common house-fly, who may unluckily fall a prey is surprising; the captive's wings and legs are instantly nipped off, and the body carried in triumph to their nest.—James Lee.

A SWARM ADVENTURE.

[1135.] Being a subscriber to your valuable *Journal*, and only an 'amateur' in the art of bee-keeping, would some of your numerous subcribers kindly state the reason of swarms taking flight after being hived in the usual way? If it is not trespassing too much on your space I should like to state the circumstances.

On the 13th inst., about 10.30 a.m., a swarm issued from one of my stocks and settled close by. I at once hived them in a straw skep, rested it on two bricks on the ground, shaded them, and they appeared to take to it wonderfully well. At about 3.30 a neighbour informed me that he had just seen a swarm pass over, and that they appeared to come from my stocks. I had a look at stocks and swarm, but did not raise the latter up as there was about the usual number flying. However, I took a stroll in the direction the bees had flown and found they had gone into a clock-tower, about a mile distant. Still believing they were not mine, and they having settled on private premises, I did not consider it was my business to interfere with them.

You will readily understand my surprise when in the evening lifting up skep to transfer them to bar-frame hive at finding it empty! I did not like being taken in in this way, and on the following morning I made it my business to proceed to the tower (having of course got permission to do so) to see if there was any possibility of getting them back. I soon discovered them nestled in some old combs. Bees evidently had been there before; but to cut a long story short, I drove them from their home with a smoker, and they quickly settled in an oak-tree, and after mounting a ladder of about sixty rounds I hived them once again. They also this time took to the skep well. I did not give them a chance to escape for as they had settled I packed them up with canvas and brought them home, keeping them in it until the evening, when I deposited them in a bar-frame hive with seven sheets of foundation. I am glad to say that on the following day they worked out nearly three sheets and are still going on all right.—C. E. C.

THE FIRST SECTION—HIGHER-ROOFED HIVES—APIFUGE.

[1136.] On Saturday I took off my first section for 1887. The hints for obtaiuing sections, as given by the two leading contributors in the *B. B. Journal*, are ex-

cellent, and beginners cannot do better than follow the advice they have given. The hive from which I have taken these sections swarmed on June 5th.

From the parent hive (which had ten frames full of brood) five frames were taken, partly for stocking an observatory hive and partly to keep in hand for strengthening swarms. Five sheets of foundation were inserted in the place of those taken, supers were put on again and the swarm returned. There are now forty-nine sections on the hive, forty-two being very fully advanced, with honey of the best quality.

May I suggest that roofs should be made higher than those usually sold? Mine are specially made to take a large number of sections which it is often necessary to have on a hive at one time.

I find 'Apifuge' a much greater success than I anticipated; no evil effects, as described in letter No. 1001, have troubled me.—ASHTON G. RADCLIFFE, *Fonthill, East Grimstead, June 20th.*

HOW I LOST MY FIRST SWARM.

[1137.] On Saturday last, after a week of constant watching, a fine swarm issued from my Neighbour hive and settled close at hand on the thick bough of a mulberry-tree. I called the gardener, and we hived them in a straw skep in the most approved fashion. I propped open the front with a stone and set the hive as a table-cloth on a table *just in the shade* of the mulberry; this was about 2.30, and I had to leave home for four hours in the afternoon, so I left the bees as they were in the skep, meaning to transfer them to a bar-frame all ready with comb, &c., on my return. I told the gardener to keep his eye on them, and to move them into the shade as the sun got round. He neglected to do the latter part, but visited them each half-hour till 5.30, when lo, and behold! every jack-bee had left the skep and have been heard of no more, though I have searched high and low.

I have now advertised them in the local paper. I suppose it was carelessness in not keeping them shaded.—SWARMLESS.

QUEEN RAISING OR INTRODUCTION OF QUEEN-CELL.

[1138.] How long will a queen remain alive in a sealed cell after being taken from the hive? On Saturday evening, June 11th, in Kingston, while changing some bees out of a makeshift hive into a newly-painted one, I cut out a queen-cell, which not being required by the bee-keeper, I carefully wrapped in paper, enclosing it in a cardboard box, and took home with me to Richmond (nearly five miles), when I placed it in a box-cage lined with wool on the top of bars, first cutting a hole in the quilt, but divided from bees with a small piece of perforated zinc. The cell was inserted next day at 4.30 p.m. (the earliest time I could possibly spare) on a bar of comb containing worker and drone brood in hatching condition, closing all carefully up. I opened the hive one week later, when, to my agreeable surprise, there was a fine young queen walking about perfectly 'at home.' As there was not the least sign of any egg-laying, I cannot say how long 'her majesty' had been out, or whether fertilisation had taken place or not. Before closing, I wish to thank you sincerely for your last kind answer to my query; also for answers to other queries, hints, &c., which are sometimes of almost priceless worth. May an all-wise Providence richly bless and prosper our esteemed editor, committee, and other bee-keepers, this Jubilee year.—HERBERT CRAWLEY, *Richmond.*

[If the queen-cells are *unsealed*, the larva, when deprived of the attentions of the nurse-bees, quickly dies. But if the cells are *sealed* when removed from the hive, and the temperature is kept sufficiently high—as in 'queen-nursing'—the young queens will not only survive the removal, but will hatch out as well as if left in the hive. The usual plan is to remove the cells to the nursery a couple of days before hatching. We desire to thank you for your kind wishes.—ED.]

THE TRANSMISSION OF HONEY PER RAILWAY TO SHOWS.

[1139.] I should like to endorse Mr. Woodley's statement in your last issue (1128) in regard to the packing of honey for transmission by railway. For the last nine years I have had the pleasure of unpacking Mr. Woodley's honey at shows in all parts of the kingdom, but I cannot recall one single instance in which it arrived in a damaged state. So much for the exhibitor. This method, however, requires improvement. It is perfectly impossible to repack in the same form at the close of the show, the time allowed does not permit of this being done.

I would suggest that the thin layers of hay be tacked on a piece of thin cardboard in order that the packer may get over his work quickly. Bottles of run honey should be placed in partitions of corrugated paper or other pliable material, not wrapped up in paper or packed in chaff. Partitions made of corrugated paper sufficient for twelve bottles may now be obtained for about 1*d.* The sides, bottom, and top of the box should also be lined with this paper, or hay pads. In this way the work can be done quickly, efficiently, and cheaply, both by the exhibitor and the show officials.—J. HUCKLE, *Secretary British Bee-keepers' Association.*

[As many large shows will be held in the course of next and following months, the attention of exhibitors at their shows is directed to the above recommendation. —ED.]

BEES OBSTRUCTING THE QUEEN.—There are many unforeseen incidents and dangers arising in the working of our railway system, but it is doubtful whether a train was ever brought to a standstill by such a curious cause as that which stopped the Queen's progress southward on her last journey from Balmoral. Everyone knows the elaborate preparations which are made for the safety of her Majesty on her travels; therefore it was with no small degree of alarm that the down distant signal of Hincaster junction, near Kendal, was found to be out just before the approach of the Royal train. The driver very judiciously brought the train to a standstill in the darkness; and upon the signal-lamp being examined, it was found that the light had been extinguished by a large swarm of bees that prevented the signalman re-lighting it. The *Westmoreland Gazette*, which is responsible for these particulars, says that Dewhurst, the signalman, regrets he had not time to secure the unwelcome intruders in a box and send them forward with the train; but, had he been able to do so, it is doubtful whether the Queen would have been able to utilise such a novel Jubilee gift.

MAKING HONEY VINEGAR.—When making vinegar, one must know that water will turn into vinegar providing it contains the necessary quantity of sugar stuff, and is exposed to fresh air and a warm temperature. The warmer the temperature and the better the circulation of air, the sooner the vinegar forms. A barrel is laid down, and an inch hole is bored in the upper end of each head, near the upper stave. This admits of a good air-passage over the body of the honey water. Tins, with fine perforations, nailed over these holes, with the rough side outward, exclude flies and skippers. Take about one pound of honey to one gallon of water, thoroughly mix up, and nail a perforated tin on the bung-hole. We take thirty-five to forty pounds of

honey for a barrel containing forty to forty-five gallons of water. The warmest place in the yard is the best place for the barrel. If the sun shines on the barrel all day, it requires from the beginning of April to the end October to make vinegar satisfactory for all purposes. If not sour enough by fall, it will be all right by Christmas or spring if placed in the cellar or a warm room.—C. F. Muth, *American Gleanings.*

Bumble-bees and Clover Blossoms.—An inquiring friend would know 'Why the first crop of clover has no seed; whether it is possible to distinguish the difference, if any, between the blossoms of the plant bearing the seed and that which bears the fertilising quality; and has the bumble-bee anything to do with it?' So far as examined, the blossoms of the first crop of red clover have good pistiles throughout, and good stamens, with plenty of what we should call good pollen. In other words, we cannot see why they are not just as capable of fertilisation as those which come later. Experiments, repeated on the second crop for six years, give varying results, but in all cases they show that bumble-bees in Central Michigan increase the crop from 100 to 400 per cent. Other insects may also help in this matter. In Kansas they tell me bumble-bees are scarce, but clover seeds freely. Honey bees at the Michigan Agricultural College, without any question, increase the yield of seeds of white clover enormously, in one case as 2:36 exceeds 5. I am satisfied that in some locations at least bumble-bees should be encouraged for the good they do to red clover. Now the problem is this: How can the entomologists rear and keep over winter large numbers of fertile queens? It seems to me not improbable that the time may come when bumble-bee queens will be reared, bought, and sold for their benefit to the crop of clover seed.—*Farmer's Advocate.*

The Uses of Beeswax.—The uses for wax are numerous and important. Its property of preserving tissues and preventing mould or mildew was well known to the ancients, who used cere-cloth for embalming, and waxed for encaustic painting, as in the wall pictures of Pompeii. Wax candles and tapers play an important part in the processions and ceremonies of the Roman Catholic Church. Wax is used by the manufacturers of glazed, ornamental, and wall papers, and on paper collars and cuffs for polishing the surfaces. It is used in varnishes and paints, and for the 'stuffing' of wood that is to be polished, as for pianos, coach work, fine furniture, and parquet floors. Electrotypers and plasterers use wax in forming their moulds. Wax is an important ingredient in preparations for covering surfaces of polished iron and steel to prevent rust. Combined with tallow, it forms the coating for canvas and cordage to prevent mildew, as in sails, awnings, &c. Artificial flowers consume much wax, and, despite the introduction of paraffin, ceresin, and mineral wax, its use appears to be extending. One of the oldest of its applications is in the laundry and in polishing woodwork.—*American Bee Journal.*

Sending Canadian Honey to England.—I am satisfied England is waiting to receive all the honey Canada can produce, and that the amount sent to the Exhibition was only as a drop in the bucket. I would suggest that a competent man be appointed in England, one who is thoroughly and practically acquainted with bees and honey, to take charge of our honey interests in England, and, if necessary, one in Canada to assist in grading, collecting, inspecting, and shipping the supply; and, if the supply can be depended upon, we have nothing to fear as to the final result. A bee-keeping friend in 1879 having a large quantity of honey requested me to dispose of it in England. I reluctantly consented. After six weeks corresponding with parties in England who were strangers to me, I succeeded in disposing of my trial shipment by the ton, netting 9½c. with an urgent request for a much larger shipment, requesting it to be put up in forty-pound cans, and not in casks as before, promising the sale would realise 10c. net. I also sent another shipment in casks of 300 and 500 pounds (a poor way of putting up) to a practical bee-keeper, who, being much pleased with it, immediately arranged to sell to large firms and other institutions, who agreed, in writing, provided the supply could be depended upon, to take four tons per month the year round. Of course the honey had to be unpacked in England and put up in 1, 2, 3, 4, and 5-pound cans, according to the requirements of the trade. This shipment netted 9½c. per pound. I was very strongly urged to ship all honey in future in smaller packages, it being more convenient in filling orders that every man should have his own tub, &c. My limited experience is, the individual who ships honey in casks and barrels makes a costly mistake. Canadian honey at this time was comparatively unknown in England, consequently we had to start low, with the intention of gradually raising the price, and in time would make it pay well.—Lewis Marsh, *Holloway, Ont.* (*Canadian Bee Journal.*)

The venom of the wasp, bee, and hornet, is a most irritating poison, but it is quickly neutralised by the application of orret oil to the punctured part.

An intoxicating and poisonous honey is extracted from the flowers of the monkstool or aconite by the choura, or wild rock bee of Gurwhal (*Apis irritabilis*). These facts make it not improbable that many more persons die from eating poisonous animal food than is generally supposed, and without the cause of death ever being suspected.

Echoes from the Hives.

North Northumberland, June 23rd.—The last fortnight has been extremely good weather for bees, the 16th, 17th, 18th so warm that it was impossible to tell which hive might take it into their head to swarm. Some have swarmed that had not even queen-cells started; several have flown away. The yield of honey is very good. Clover is now just ready for work, which will be plentiful if we have a little rain. Swarming is from two to three weeks earlier than last year in this district. Many more stocks of bees than there were a few years ago.—G. A.

Brentwood, Essex, June 25.—As I never or very seldom see an 'Echo' from this part of the world, I thought I would send a very faint one, but question very much if many of the Essex folks will see it as our County Association *very unwisely* took a step backward in giving up the circulation of this very valuable *Journal* amongst its members. On June 18th I examined a hive, and to my surprise found a large number of sections sealed, but was content to take but three for a start, as I was requested to get a crate off by Jubilee Day; on which day I took off the remainder of the twenty-one sections, every one perfectly sealed, which I have every reason to believe is the first lot taken in this neighbourhood this season, and at the time of writing this the same hive has a crate filled with fully worked out sections, and some partially sealed over. I may just add that I have had no swarms at present from any of my five hives but all are working well in the sections, and, weather permitting, shall have more off to-morrow; the strongest lot of bees are on fourteen frames and the weakest on eleven. Now one word for Apifuge, which I have tried. I find no unpleasant feeling from it in the least, and had but one sting while I have used it; so much so that I have discarded my veil while I am depriving the hives of their sections; and I think all bee-keepers owe friend Grimshaw a great debt for bringing out such a charm.—Chips.

North Leicestershire, June 27th.—The fourth week of uninterrupted fine weather is well on its way, and the bees are filling bars and sections quicker and earlier than usual. Many stocks have not yet attained their full strength, and drones are scarce, as are swarms also. White clover is in full bloom in the meadows, and just beginning to show a

head here and there in the pastures. One little drawback to this pleasant state of affairs is that sycamores are streaming with honey-dew.—E. B.

Kingston.—Hives appear to be doing fairly well in this district now. One lady bee-keeper had a fine swarm on May 31st. Have not heard of any others about. Most bees seemed three weeks behind as to brood.—H. C.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

North Derbyshire.—*Drone Combs in lower Hive.*—The absence of facilities for raising drones in the upper hive, all the combs being worker, their natural instinct prompted the bees to build drone-combs. Although the frames are set 1¼ inch apart you would find when the time for sealing arrived that some combs would be left thin, to allow for the caps in the opposite faces. The natural position of drone combs is in the lower part of the hive, and if you had given the frames above the stock instead of below worker combs would have been built.

G. Anderson.—1. At this time of the season you might remove the pollen-bound combs and substitute in their place empty combs or foundation sheets, placed alternately. 2. We should prefer to retain the old queen to inserting queen-cell. Much depends on the age of the queen. If not too old, there is no advantage in risking a certainty for an uncertainty. 3. We have forwarded your letter to Mr. Webster.

H. W. W.—Probably there may be in your neighbourhood some plant from which the bees have been gathering honey which has been the cause of their death. (See reply to 'R.')

Novice.—It would be desirable in building honey-comb designs to make use of excluder zinc. Mr. M'Nally, of Glenluce, or Mr. Woodley, of Newbury, Berks, would be pleased to furnish you with any further information.

A Learner.—You might improve on the piece of enamelled cloth forwarded. It has a smell which would prove offensive to the bees.

M. and T.—*Doubling.*—A reference to Mr. Cowan's pamphlet on *Doubling and Storifying* will show you that in his instructions he mentions that he does not use excluder zinc when doubling hives. (See p. 8.) A piece of American cloth placed over the brood-nest will generally have the effect of preventing the queen ascending to the upper hive.

An Amateur.—1. The bees will not ascend to the super till they find the lower hive inadequate to their requirements. When they desire more storage room they will ascend. Patience with bee-keepers is a virtue. 2. Casts should be fed. The size of the cast should determine the number of frames in the hive. We should say that six would be more than enough.

R.—*Bees dying.*—From your description we should have said that the bees were suffering from *Bacillus depilis*, but the specimens you enclose show no loss of pubescence. It is quite possible that the colony is collecting from some poisonous plant or flower. We advise you to raise the hive slightly from the floor-board all round by small wedges, sufficiently to cause a current of air to pass beneath the combs, but not enough to admit of the entrance or exit of bees. Feed also on phenolated syrup, and do not open the hive or attempt to manipulate. Under this treatment probably the colony will soon recover. We have no experience of the 'Greenock disease.'

Mater.—1. *Hybrids.*—The specimens forwarded are hybrids very little removed from blacks. The three orange bands, which form the mark of a pure Italian, cover the upper half of the abdomen. 2. *Drones.*—There are few hives in which the bees do not succeed in raising a few drones, even when their combs are built upon full sheets of worker foundation. But even supposing the non-existence of drones in a hive, the colony, at this season, may safely be divided, since there is no doubt that drones exist in the neighbourhood. 3. *Italians, Carniolans, Blacks.*—In our experience Italians are better honey-gatherers than Carniolans. The cross between Carniolans and blacks would probably be an improvement of either race pure, but the temper might be uncertain. 4. *Introduction of Brood into Nuclei.*—The reason for introducing brood into nuclei is that in all probability without it the bees would swarm out and desert the hive, having a virgin queen only. Besides a succession of bees is required. 5. *Excluder zinc.*—Foundation will be drawn out quicker when placed in the body of the hive than behind excluder zinc. We find that the zinc very much impedes the work of the bees.

Walter F. Cromey.—The specimen with white flowers is *Cotoneaster microphylla*. The one with blue flowers is a member of the Borage family, a species of *Anchusa*, but from the small portion enclosed we are unable to determine which with certainty.

H. S. W.—*Crooked Combs in Bar-frame Hives.*—Remove the whole of the frames *en bloc*. Separate the combs, and if possible straighten them by gentle pressure; if very crooked, cut down to the midrib on the convex side; press the comb flat, then tie on to your frames again, keeping the midrib in the centre of the top bar; never mind the outsides, if the midrib is straight you are right. The small amount of brood sacrificed will be of no moment. The assistance of an expert would be desirable.

New Subscriber.—Mrs. Tupper says, 'Bees do nothing invariably.' It is difficult to control the ways of bees; they have a will of their own, which even old bee-keepers cannot manage to dominate.

J. Edwards.—1. The best time for manipulating bees is the middle of the day when the larger number of them are busy foraging. 2. By laying a handkerchief moistened with carbolic acid solution on the top of the sections, the bees will be driven down, and then it will be a comparatively easy matter to remove the sections. See last week's 'Useful Hints.'

Received from Mr. W. J. Green, 36 Friars Street, Sudbury, Suffolk, the model of a hive which he purposes to style the 'Imperial' hive. This hive has various novel features and answers the double purpose of an ordinary and an observatory hive. It will be exhibited at the next conversazione, when those present will have an opportunity of passing their opinion on it.

Show Announcements.

Giving Name and Address of Secretary, Date and Place of Show, Date of Closing Entries. Terms: Three Insertions and under, Two Shillings and Sixpence; additional insertions, Sixpence each. No charge made to Associations whose Shows are announced in our general Advertising Columns.

July 11–15.—Royal Agricultural Show at Newcastle-on-Tyne. J. Huckle, Kings Langley.

July 14.—Oxfordshire Association at Headington. Hon. Sec., Rev. F. C. Dillon, Enstone.

July 21.—Prescot Horticultural Show. R. Rigby, Secretary, Station Road, Prescot, Lancashire.

July 20-22.—Lincolnshire Agricultural Society at Spalding. Entries close July 4. R. R. Godfrey, Secretary.

July 26–28.—Gloucestershire Agricultural Show at Cheltenham. Entries close July 12. W. D. Slade, Sec.

July 26, 27.—Warwick Agricultural Society at Sutton Coldfield. J. N. Bower, Secretary.

July 27.—Bishops Waltham Show. (Hants and Isle of Wight Association.) H. W. West, Hon. Sec., Swanmore House, Bishops Waltham.

August 3-5.—Yorkshire Agricultural Society at York. Secretary, H. L. Rickards, Poole, near Leeds.

August 9, 10.—Irish Bee-keepers' Association at Salthill Gardens, near Dublin. Entries close August 2. Hon. Sec., Henry Chenevix, Blackrock, Dublin.

August 14.—Handbridge, Chester St. Mary's Horticultural Show. W. E. Little, Hon. Secretary, Eastgate Row, Chester.

August 24.—Lancaster Agricultural Show. W. Liddell, Hon. Secretary, Dale Street, Lancaster.
August 31–Sept. 3.—Royal Manchester and Liverpool Agricultural Show at Manchester. W. Lees McClure, Hon. Secretary, The Lathoms, Prescot, Lancashire.

Business Directory.

For the use of Manufacturers and Purchasers of Bee-keeping Appliances.

The Name and Address and Business of any Manufacturer will be inserted in this List, under one heading, for One Pound per annum. Additional headings, Five Shillings extra. Advertisers in 'The Bee Journal,' whose orders amount to Five Pounds per annum, will be inserted Free.

HIVES AND OTHER APPLIANCES.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
Appleton, H. M., 256A Hotwell Road, Bristol.
Baker, W. B., Muskham, Newark.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
British Bee-keepers' Stores, 23 Cornhill, E.C.
Burtt, E. J., Stroud Road, Gloucester.
Edey & Son, St. Neots.
Howard, J. H., Holme, Peterborough.
Hutchings, A. F., St. Mary Cray, Kent.
Meadham, M., Huntington, Hereford.
Meadows, W. P., Syston, Leicester.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
Stothard, G., Welwyn, Herts.
Webster, W. B., Wokingham.
Woodley, A. D., 26 Donnington Road, Reading.
Wren & Son, 139 High Street, Lowestoft.

HONEY MERCHANTS.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
Baker, W. B., Muskham, Newark.
Baldwin, S. J., Bromley, Kent.
British Bee-keepers' Stores, 23 Cornhill, E.C.
British Honey Co., Limited, 17 King William St., Strand.
Edey & Sons, St. Neots.
Howard, J. H., Holme, Peterborough.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.

FOREIGN BEES AND QUEENS.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
Baker, W. B., Muskham, Newark.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
Benton, F., Munich, Germany
Edey & Sons, St. Neots.
Howard, J. H., Holme, Peterborough.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
Simmins, S., Rottingdean, near Brighton.

METAL ENDS.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
Baker, W. B., Muskham, Newark.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
British Bee-keepers' Stores, 23 Cornhill, E.C.
Edey & Sons, St. Neots.
Lyon, F., 94 Harleyford Road, London, S.E.
Meadows, W. P., Syston, Leicester.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.

COMB FOUNDATION.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
British Bee-keepers' Stores, 23 Cornhill, E.C.
Edey & Sons, St. Neots.
Howard, J. H., Holme, Peterborough.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
Stothard, G., Welwyn, Herts.

HONEY GLASS MERCHANTS.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
Pearson, F., Stockton Heath, Warrington.

EXHIBITION OF HONEY, BEES, & HIVES,
At ELY,
JULY 27TH AND 28TH, 1887.
(OPEN TO ALL ENGLAND.)

Judge: R. R. GODFREY, Esq., Grantham.

NINETEEN PRIZES. FEES, 1s. and 2s. 6d.

Schedules and Forms of Mr. R. Peters, 7 Downing Street, Cambridge. (177)

YORKSHIRE AGRICULTURAL SOCIETY.
YORK SHOW, 1887.

NOTICE.

No Entries can be made after this day (June 25th) except by payment of Late Entrance Fees, viz.:
Exhibitors of Implements to pay a late Fee of 10*s.* with each Certificate.
Exhibitors of Live Stock to pay as under:
Members of the Society, 10*s.* on each separate Entry.
Non-Members of the Society, £1 on each separate Entry.
All other Charges as before.
LATE ENTRIES will be received up to **SATURDAY, JULY 2nd.**

MARSHALL STEPHENSON,
York, *June 25th*, 1887. *Secretary.*

TO SECRETARIES OF SHOWS.

Fry'S Prize Medal Honey Beverages, Champagnes, Syrups, and Cordials, sell well. Assortments on Sale or Return. Lists free. Also Fry's 'Anti-sting,' 6*d.* and 1*s.* Anti-sting Soap, 6*d.* Tablet. Agents Wanted.

MANUFACTORY: BISHOP'S WALTHAM. A 2662

MANIPULATE WITHOUT SMOKE!

WEBSTER'S FUMIGATOR

Entirely supersedes the Smoker, both in Simplicity and Effectiveness. No 'going out.' No tainting or soiling of combs. Always ready for use without any preparation. Can be carried in pocket.

With Bellows, 4s. 6d.; postage, 4½d.
Without Bellows, 3s.; postage, 3d.
Can be adjusted to any ordinary smoker bellows.
6 oz. **Bottles of Agent—carbolic acid, oil of tar, and water proportionably mixed—6d. each.**

NOW READY.

WEBSTER'S SWIVEL FRAME-LIFTER

With this appliance, frames can be removed from hive. Examined on both sides and replaced without inverting, and with one hand only, leaving the other free to perform any manipulation, at the same time preventing the soiling of hands with propolis. **1s. 6d.** each. Postage **3d.**

Send for ILLUSTRATED CATALOGUE of all descriptions of Appliances. Post free on receipt of post-card.

AWARDS LAST SEASON.

1st Prize, Silver Medal, Royal Counties' Agricultural Show.
Highest Award, Bronze Medal, Colonial and Indian Exhibition, for Bee Subjugators.
2nd Prize Bronze Medal, Colonial and Indian Exhibition, for useful Inventions introduced since 1883.
2nd Prize, Altrincham, for useful Inventions.

W. B. WEBSTER,
BINFIELD, BERKS.

Reversible Section Holders.

(PROTECTED).

Set of Six, with Dividers for 21 Sections, **1/6.**
" " 24 " **1/9.**

Crates, fitted with Holders and Dividers, on Tin Rests, for 21 Sections, **3/9**; 24 Sections, **4/-.**

W. H. JENKINS, Exchange Buildings, Swansea.

SUPERIOR BEE VEILS.

WIRE GAUZE FRONTS, 1*s.* 2*d.* each, 3 for 3*s.* Traps for Cleaning Supers, 6*d.* each, 3 for 1*s.* Post free. Address, W. CRISP, Halstead, Essex.

Finest CYPRIAN Queens.

DIRECT by MAIL from CYPRUS to any Address in EUROPE.

From 1st MAY to 30th AUGUST.

For 1 or 2 Queens (if ordered at one time), each **14/-**
" 3 " 4 " " " " **13/-**
" 5 " 6 " " " " **12/-**

For Countries out of Europe add 50 % to above prices.

All Orders to be accompanied by a Remittance.

☞ My Queens are all very prolific, long-lived, and much larger-bodied, than the majority of those supplied by others, as they are reared naturally, under the swarming impulse, in April, May, and June, from the strongest of my forty colonies of Bees kept in double-walled moveable frame-hives, and all having choice Queens, which produce workers so gentle that they can be handled without smoke, and even without a veil on the face, just as I do myself (see Mr. S. Simmins' statements on page 37 of his work entitled, *A New Era in Modern Bee-keeping*). This is principally owing to the fact that I have weeded out from my Apiary all such Queens which appeared to be weak or producing troublesome workers. Address—

M. G. DERVISHIAN, Larnaca, CYPRUS. A 2375

For Reference, address IMPERIAL OTTOMAN BANK, LARNACA.

LYON'S Patent METAL ENDS.

THE only perfect pattern. The metal being flush with the inside of the Hive side, CANNOT BE FIXED TO IT BY PROPOLIS. All the so-called Improvements CAN.

The Special Alloy used allows them to be LIGHT YET STRONG. One gross weighs 5¼ lbs.

Price for 1887 **5/6** per gross.

DR. PINE'S VEILS.

Prize Medal, 1879, for the best Bee Dress. The only Medal ever awarded to a Veil, **2/2** each, post free. Every genuine Veil bears the Registered Trade Mark.

DR. PINE'S LOTION.

The ONLY CURE for Stings, **1/8** per bottle, post free.

CHESHIRE CURE.

Guaranteed, with Directions, **1/2** per bottle, post free.

Methyl Salicylate, or 'Sting Preventer.'

1 oz. bottle, post free, **1/8.**

HIVE MAKERS supplied with SPRINGS, GLASSES for Sections, PHENOL, METHYL SALICYLATE, in bulk, &c., &c., at lowest prices.

F. LYON, 94 Harleyford Rd., London, S.E.

WANTED.—ROOT'S 'A B C,' HEDDON'S 'SUCCESS IN BEE-CULTURE,' & CHESHIRE'S DIAGRAMS. Reply W. G. CAMPBELL, Hornefield, Tottenham.

WANTED.—SITUATION in AUSTRALIAN or NEW ZEALAND APIARY. Age 21. Holds First Class Certificate of British Bee-keepers' Association. Has been 5 years with Chartered Accountants. Address W. G. CAMPBELL, Hornefield, Tottenham, England, to 15th July, 1887; subsequently, c/o MARSHALL BROS., 106 Market Street, Sydney.

WANTED, a SITUATION as BEE-KEEPER in a Nobleman's or Gentleman's Establishment. No objection to fill up time in Garden or House. Third Class Certificate. Married; aged 35. Apply J. G. CREEK, Great Dunmow, Essex.

FOR SALE.—CYLINDER HONEY EXTRACTOR, Cog-wheel Gearing, Moveable Strainer and Tap, complete, 17*s.* 6*d.* Address G. COOPER, Normanton. Derby.

FOR SALE.—ASSOCIATION STANDARD BAR-FRAMES, Planed throughout, with Saw-cut for Foundation. Price in the flat, 10*s.* 6*d.* gross; nailed together, 15*s.* gross. Address COOPER, Spa Lane, Derby. A 2695

BORAGE.—Good Strong Plants, 5*s.* per 1000. SEED, 4*s.* per lb. Apply Estate Office, Toddington, Winchcombe.

REDUCTION in Price to clear out Stock.—BAR-FRAME HIVES, with 20 Frames for Extracting; or 10 Bar-Frames, and 3 Crates each, for Comb Honey, about half usual price. Address JOHN MOORE, Prospect Farm, Warwick.

SPRING TRAVELLING CRATE

For LEAF SHOW CASE, price 2*s.* 6*d.*, postage, 1*s.* 3*d.*

Case and Crate combined, 6*s.*, on rail. Case alone, 4*s.*, postage, 1*s.* 6*d.*, or on rail, 4*s.* 6*d.* Apply to W. H. DOLAN, LOOSE, MAIDSTONE. *See also Advt. June 16th.* A 2702

MANUFACTURERS OF BEE-KEEPERS' APPLIANCES are invited by the Committee of the BEDFORDSHIRE BEE-KEEPERS' ASSOCIATION to Exhibit their Goods at the ANNUAL SHOW, to be held at BEDFORD on July 13th, 1887. A small Fee will be charged.

Felmersham, Bedford, June 22nd, 1887. W. RUSHTON, *Hon. Sec.*

FOUNDATION.

1 lb. **2/-.** 4 lbs. @ **1/9** per lb. Analysed (British Brand).

SUPER, 2 lbs. for **5/-.**

G. STOTHARD, Foundation Factory, Welwyn, Herts. A 2616

The best Journal of its kind, edited and published by the renowned C. F. H. GRAVENHORST, Brunswick.

DEUTSCHE ILLUSTRIERTE BIENENZEITUNG.

Sample copies sent on request.

Also, 'DER PRAKTISCHE IMKER.' Compendium of Rational Bee-culture, by C. F. H. Gravenhorst. Third enlarged and improved edition, with fifty-two new original Pictures, and a frontispiece. Price 4 marks (4*s.*), stitched; well bound, 5 marks.

C. A. SCHWETSCHKE & SON (M. BRUHN), Brunswick.

SWARMING SEASON.

TIME SAVED IS MONEY EARNED!

All Goods ready for instant Delivery.

Just to hand, a Shipment of the Finest and Whitest AMERICAN SECTIONS ever imported, 11/- per 500.

YUCCA BRUSHES, 3d. Improved BRUSH (for Extracting), 9d. each.

WIRE EMBEDDER and ROLLER, 1/6 each (Root's).

WOIBLET SPUR EMBEDDER, 1/6 each.

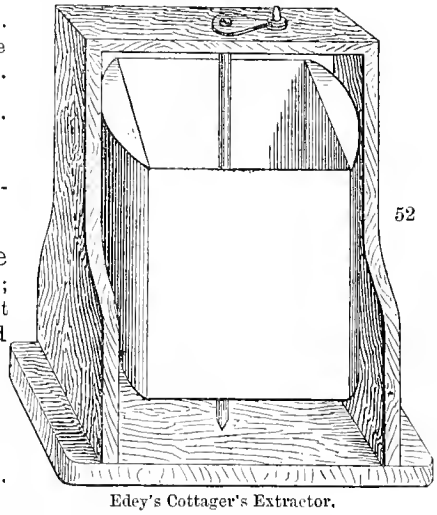
EDEY'S Improved SMOKER, with Moveable Shutter and Flue Cleaner, 2/9 each.

BINGHAM, Imported, 7/6. Fuel for ditto, 3d. per lb.

EDEY'S Method of Fixing Foundation in Dovetailed Standard Frames, Wired. Send for WIRING OUTFIT of 1 dozen Frames, Foundation Nails, all necessary Tools, **7/6**. See List.

NOTE.—**Special Split Key** and **Woiblet Spur** included in price; the Key has been used by us for FOUR YEARS. Hundreds of Frames have been extracted without a breakdown. Sample Frame, **9d.**

EDEY'S COTTAGER'S EXTRACTOR (52). This revolves two Combs at a time; the Honey may be emptied by the Screw-valve at foot. Not shown in engraving. Price **17/6**; Crate, **2/-**.



52

Edey's Cottager's Extractor.

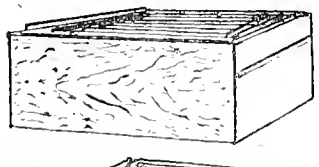
LOCK-UP TRAVELLING CAN, to hold 56 lbs. Honey. Price **5/9**.

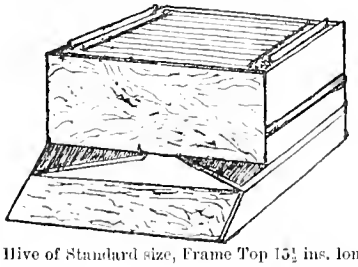
NESTED TINS for Honey, the Set of 4, holding together 35 lbs., price **1/4**; postage **6d.**

BEES.—English Swarms, 12/6 each; Palestine Queens, **15/-**; Syrian, **20/-**; Home-bred ditto, half price; **Black Queens, 4/-**; **Syrio-Carniolan Queens,** the most Prolific and Best Queens in existence, price **9/-** each; **Imported Carniolans** (BENTON'S). **8/-** each.

DOUBLE your HONEY HARVEST by Using WORKED-OUT COMBS!

Clean WIRED COMBS in Frames, 10/- per doz.





Hive of Standard size, Frame Top 15½ ins. long.

CHEAP, STRONG, EASILY MANIPULATED.

EDEY'S DOUBLER (7 A). Complete for Doubling or Tiering. As shown, with 20 Frames, 2 Dummies, Waterproof Cover, Contracting Entrances, price **10/6**. In flat, each, **5/-**.

For Supering: Complete Hive, 6/6; Section Crate, 2/6; Additional Body-box, **2/6**; Crate of 5 Hives, **23/9**.

THE UNIVERSAL (No. 7). Of superior workmanship, high outer sides. A first-class Hive for general work, with Super Crate, price **12/6**.

FOUNDATION.—In addition to the ordinary Brood and Super, we have a few Parcels of very Thin and Delicate SUPER FOUNDATION, for *filling* Sections completely. Average weight, 20 sheets to the lb. **3/6** per lb.

EDEY'S DOVETAILED FRAMES. Best and Cheapest made. No Frame-block needed. **2/-** per dozen; **12/6** per 100.

For a full line of our Manufactures, see List, free.

EDEY & SON, Steam Joinery Works, ST. NEOTS.

THE BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, Cambridge Circus, W.C.'

[No. 263. VOL. XV.] JULY 7, 1887. [PUBLISHED WEEKLY.]

Editorial, Notices, &c.

BRITISH BEE-KEEPERS' ASSOCIATION.

ADDRESS OF SECRETARY.—All communications from this day until Thursday next, the 14th inst., should be forwarded to 6 Simpson Street, Newcastle-on-Tyne.

THIRD CLASS EXAMINATIONS.—Arrangements have been made for holding a Third Class Examination of Candidates at the Royal Agricultural Show, Newcastle-on-Tyne, on Tuesday next the 12th inst.

EXAMINERS' REPORT.—The following Report has been made by the Board of Examiners, in reference to the First and Second Class Examination held on April 20. 'Four Candidates submitted themselves for examination, three of whom held Second Class Certificates, one being a Candidate for Second Class only. The result of the Examination is as follows, the names of the Candidates being placed in the order of merit:—

'*First Class.*—1. W. M. Graham, Church Street, Lower Edmonton; 2. W. G. Campbell. Hornefield, Tottenham; 3. W. de Lacy Ahern, Sutton, Surrey.

'*Second Class.*—G. Munday, Aylestone Park, Leicester.

'As on former occasions weakness was displayed in the lecturing and *viva voce* portions of the examination; and we express a hope that future Candidates will give their best attention to the subjects as set forth in the Syllabus and to lecturing in public. Clearness and simplicity with a thorough knowledge of the subjects being of the utmost importance, those who aspire to First Class Certificates will do well to bear in mind that a fair acquaintance with orthography and English composition is a *sine quâ non* for obtaining them.

THOS. W. COWAN.
F. G. JENYNS.
GEO. RAYNOR.'

OUR HOBBY.

How often are we brought face to face with the directly beneficial effects on the mind of a health-giving hobby!

Save us from our friends without hobbies.

The harassing cares of business, and the worrying anxiety of professional duties, bring one down to a nervous, fevered state in which some soothing influence is almost absolutely necessary, in order that the calm equilibrium of 'a healthy mind in a healthy body' may be restored. In such cases comes forth 'the hobby,' be it the art of gardening, the study of botany, or what not.

A stroll in the woods; a lounge on the way-sides of the country (magnifying-glass in hand, perhaps); the vigorous handling of a spade in the trenches (the celery trenches); the calm contemplation of the beauties of nature; all these we say, tend to produce that change of labour and thought which is *rest*.

When the optical sense becomes saturated and charged with any certain key of colour, the eye becomes weary and inflamed; it seeks repose by resting upon the complementary colour, the absence of which prevented an harmonious combination such as would satisfy the visual nerves by its completeness. Unrest and irritation resulted, and did we not voluntarily supply the missing link, kindly Nature herself would have stepped in to fill the gap and give the eye *rest*. That is to say, the *rest colour* springs into the retina; for example, the greenery of our fields and woods turns the grey walls and rocks into soft, harmonising purples; the brighter greens appear almost yellow, whilst in the shade they deepen into blueish purple. Thus does Nature give us her own perfect harmony and repose.

The great hero of rose-growers* was once impelled to return to his country home by the contemplation of a fresh rose in the hands of a London flower-girl—a penny rose—the unrest and agitation of a sojourn in town needed but a suggestion from his beloved hobby, to urge him into taking the next train down to his roses. A year ago we stopped to watch a honey-bee rest a while on the steps of St. Paul's Cathedral, alone as she was in the very core of civilised and unsuitable places, and where no one would expect to find such a connecting link between ourselves and home. Then arose a vision of our hives in June; filled sections; the much-dreaded natural swarms; and all the other ills that can befall a bee-keeper away from his bees. We seek in vain for consolation in the saying that 'it is the unexpected that happens,' for it is the dread expectancy itself we find, on our return, to have occurred.

* Canon S. R. Hole.

A few weeks ago we noticed a queen humble-bee flying about under the railway arch on the Borough side of London Bridge. Speculation as to what brought her there only reopened the vista of longing for a return to other humble-bees.

Revenons à nos abeilles. Who but a bee-keeper can feel that delightful thrill of satisfaction which fills the breast on the return to refreshment from labour? The merry hum of workers; the lazy boom of drones; these sounds are such sweet contenting music to his ears, that if he do not give a sigh of mingled joy and thankfulness for being permitted to enjoy such a recreative hobby, well—he must have a coarse appreciation indeed of blessings bestowed, coarser than, we apprehend, is generally found amongst bee-keepers in this land.

'Man goeth forth to his work and to his labour, until the evening.' The evening meal being over, how joyfully does he hie him to the neighbourhood of his hives! Soothing influences are around him; all is quiet; calm reflection fills his mind, bringing into it that very repose which rests his world-torn spirit, and fitting him anew to recommence the harassing grind of duty in the morn, a duty he is better enabled to continue, because his mind and body obtains there rest.

His bees, however, unlike him, are working continuously on to their death, for the moon is rising and their day's work still goes on, still they set forth in their quest for nectar. Let him listen at this time near the back of a prosperous hive, and it seems as though the real labour of the day is only just begun, for all are at home, yet rest not.

In the morning he is up with the lark, for how can he, for very shame, remain at rest on such a bright morn, when he knows his little slaves were at work as soon as either lark or chanticleer heralded the day? The dew is yet on the grass ('ilka bled o' grass has its ain drap o' dew'), there has been no rain for weeks perhaps, so his bees have said they must draw water. The doorstep of the hive is cold and moist by reason of the condensed vapours of the night; two or three weary, sleepy-looking bees crawl lazily about just under the porch, tired of the night's sentry duty; a few more, which have the air of having been up all night, venture forward, as if testing the barometrical and thermometrical conditions of the air—diagnosing the new-born day, so to speak. All at once the fit seizes one to fly round on a more extended meteorological expedition; and returning, it sallies forth on a far voyage, accompanied by a confiding sister bee. Single bees return, and pairs go forth, until soon all is activity, and the joyous bee-keeper is assured of a fine day by his own true little weather prophets. And yet, how quietly they work during the early morning! He cannot hear the usual hum of noon, and thinks, maybe, their little wings are softly damped with early morning mist, and do not buzz as they surely will when crisped and dried by the sun's all-vivifying beams.

Solomon sent the sluggard to the ant; but, as bee-keepers, send us to our bees.

JUBILEE DESIGNS.

In almost every hamlet and town throughout the kingdom the spirit of loyalty has been demonstrated in the various processions of the trades, manufactures, and societies that have perambulated through the principal streets and roads. It may be possible that Bee-keepers' Associations have borne a part in these enthusiastic displays, though the record of such has not reached us. *Tableaux vivants* after the frontispiece of *Modern Bee-keeping*, or some of the plates in Mr. Jenyns' work on bee-keeping, would have proved most effective, and would have given a local place to bee-keeping amongst the other industries of the respective places. When we visited the Reading Show last week we were much gratified at the Jubilee designs of Mr. W. Woodleigh, of Newbury, which we consider much in advance of those exhibited by him at South Kensington.

At Blandford, Mr. J. J. Alsford, the expert of the Dorset B.K.A., exhibited in Jubilee week in his shop-window in the Market-place a very beautiful work of his bees, which he had caused to form the letters 'F. T. T.' (the initials of a local celebrity), with comb filled with honey, flanked with the workers in a glass hive. Large crowds of spectators were continually gathered round the window. Mr. Alford had also, exquisitely worked, the word 'Jubilee' in honey in comb, about six inches deep and fifteen inches long, with this declaration in verse—

'My bees unite to swell with me
The universal Jubilee.'

At Bedford Dr. Wray, the inventor of the 'Mel-pel,' displayed the following amongst the decorations of the town:

The Royal Arms, surmounted by a real straw-hive or skep, upon which was inscribed—

'The Honey Bees.'

'Creatures that by a rule in nature teach
The art of order to a peopled kingdom.'

Atop of the hive stood a 'smoker,' by means of which the modern bee-man keeps *peace* with his bees, and shares with them their *plenty*. The legend, therefore, on the smoker was:—

'V.R. Peace and Plenty.'

Next above this came a queen-bee, much enlarged; and over her (with the following lines between) was a portrait of our Gracious Queen Victoria:—

'First in the throng, and foremost of the whole,
One stands confest the sovereign and the soul.'

The background was a red curtain, and the whole surmounted by festooned flags; the Royal Flag in the centre of those of All Nations; St. George's, flanked by Union Jacks; the Royal Standard; and, above all, Medallions of the Queen in 1837 and 1887.

GLEANINGS.

In the *Bee-keepers' Magazine*, G. W. Demaree, describing his system of controlling increase, says that when a swarm issues it is hived on five frames of standard Langstroth size, the rest of the brood-chamber being filled with division boards cleated on the sides, so as to make them stand half-inch apart. Over all goes a metal queen excluder, and the surplus cases are tiered on

top, as many as needed for the surplus crop. The new hive occupies the old stand, and the old hive is set at its rear and disguised by spreading some cloths over it. In six or seven days after the swarm issues, he lifts out the combs in the old hive, shakes nearly all the bees off of them in front of the new hive, and moves the old hive to a new position in the apiary. If there is a case of partly filled sections on the old hive, it is transferred to the new, as the old colony will be some time getting ready to gather surplus honey. The result of this management is that the new swarm is sure for surplus for all it can get. The queen can occupy but a small space for brood, and the honey is forced into the surplus cases. The honey is all taken from them as fast as completed, and the colony goes down to a mere nucleus by fall, and the 'way of all the earth,' unless you choose to unite them in the fall. In this way he gets a good yield from the swarm, and the old colony rears a vigorous queen, gathers sufficient stores for winter, and so gets no increase. He says the plan, in a 'nut shell,' is to use up increase in producing surplus honey.

In *Gleanings*, A. I. Root gives the results of his experiments on the protection of bees from heat and cold. He says that some years ago he made such full and complete experiments in trying to decide whether the chaff hive was an advantage in winter as well as in summer, and that he was not mistaken in thinking he would get more honey in a well-protected super than in one exposed directly to the weather, especially when there are cracks admitting rain and wind. He verified it again in the house apiary, by having the bees build and store comb-honey in sections protected by good warm covering, and without any protection except a piece of sacking. He repeatedly caused the bees to commence storing and stop storing in supers by putting a close, warm top over them and taking it off again. The fierce heat of the sun would stop work, and within a week or ten days cold nights would also stop work; whereas if an outer hive or top confined the air at such a time, work would go right along. Colonies of equal strength were tested side by side, and more bees went to the fields and more pounds of honey were gathered when protection was given.

In the *Canadian Bee Journal*, Dr. C. C. Miller says he prefers giving for brood-chamber the smallest room the queen will fill in early spring, then increasing to the largest room just before harvest, to be again contracted on putting on the supers. He prefers top storing to any other, although G. M. Doolittle recommends top and side storing combined. Of eleven bee-keepers who give their opinions, nine prefer top storing.

In the *Journal of the Royal Microscopical Society*, M. A. Forel gives an account of past and recent experiments on the vision of insects, and sums up the conclusions as follows:—

(1.) Insects direct themselves in flight almost wholly, and on the ground partially, by means of their facetted eyes. The antennæ and buccal sensory organs cannot serve for directing flight. Their extirpation makes no difference.

(2.) J. Müller's mosaic theory is alone true. The retinulæ of the compound eyes do not each receive an image; but each receives a simple ray more or less distinct in origin from that of its neighbours. (Müller, Grenacher, Exner.)

(3.) The greater the number of facets, the more elongated the crystalline cones, the more distinct and the longer the vision. (Müller and Exner.)

(4.) Insects can see particularly well the movements of bodies, and better during flight than when at rest, the image being displaced in relation to the eye (Exner). This perception of the mobility of objects diminishes as the distance increases.

(5.) Contour and form are only indistinctly appreciated and the more indistinctly the fewer facets, the shorter the crystallines, the farther and smaller the objects. Insects with big eyes with several thousand facets can see with tolerable distinctness.

(6.) In flight insects can by means of their compound eyes appreciate with accuracy the direction and distance (not too great) of objects. When at rest they can also estimate the distance of fixed objects.

(7.) Certain insects (bees and humble-bees) can clearly distinguish colours, and that better than form. In others (wasps), the perception of colour is very rudimentary.

(8.) The ocelli seem to furnish only very incomplete vision, and to be simply accessory in the insects which possess also compound eyes.

In *The production of Comb Honey*, by W. L. Hutchinson, he says that separators are needed when sections two inches wide are used, or when they are to be glassed. They are also needed with any system that does not admit of tierring-up; because when sections are removed singly, or by the wide frame full, bulged combs will be the result, unless an unprofitable amount of manipulation is performed, when the spaces are filled with new sections. With wide frames separators are certainly a convenience, that is, they furnish a 'strop' against which to push the sections, thus keeping them in line, and their edges even with the edge of the wide-frame. It is only by the adoption of 'tiering-up' method, in which a whole case of sections is removed at one time, that separators can be abandoned with any hopes of success. Black bees, he says, or those having a dash of black blood in their veins, are more inclined to build straight true combs without separators, than in any variety of bees which he has tried.

USEFUL HINTS.

Hot, scorching days, with close, stifling nights, mists in early morning betokening another sweltering day. Such has been the order of the day with us for over a month—not a drop of rain. Oh! may we shortly see—

> 'At last
> The clouds consign their treasures to the field,
> And, softly shaking on the dimpled pool
> Prelusive drops, let all their moisture flow
> In large effusion o'er the freshened world.'

This dry weather suits the clover, and where the grass is not already cut, the bees are working it well. The acacias are just over; there is a large tree here which the bees have been working from morning to night. The limes are in bud and promise a plentiful supply of honey if we only get a few days' rain, already some of the earliest trees are bursting into blossom; with us there are trees in different stages which usually yield a honey-glut for a full month. Dutch clover will be reappearing in fields which have been mowed; last year the greater part of the surplus consisted of that gathered from the aftermath of clover.

Hives should be well shaded from the scorching rays of the sun, and water provided if not obtainable, near at hand; of course not forgetting the pieces of stick or cork placed on the water to afford a foothold for our *protégées*. Plenty of ventilation should be given by propping up the hive from the floorboard; those whose hives possess moveable floorboards will now experience their benefit, the fanners at once relinquish their labour as soon as a free wide entrance is provided. A large board leant against each hive, if not already in the shade, gives great relief from the heat, although it may be rather unsightly. A plan which we adopt is to drive a yoke of wood in front of the hive, the cross-piece some six inches higher than the top of the hive, and stretch a piece of unbleached calico across to the back of the hive, and have always found it very useful.

A Word of Warning.—You who have new untried hives, look to your roofs when this dry spell of weather is over, or rather, look to them at once before the rain

comes, for the sun may have opened the joints, and the first shower will soak the quilts, and if not noticed, occasion great damage.

Sections have been deserted or not taken to in consequence of the continuous drought. Even brood placed in the supers has been abandoned. There is very little fear of the queens being crowded out by the honey-gatherers, still fresh room must be given them in the brood-nest. Doubling will give us the best returns. If we do not provide our queens room in advance of their requirements, we must expect swarms which will issue too late to give us satisfactory results. In those cases where swarms have been returned to the parent hive, they have refused to occupy the supers and have swarmed out again. Swarms of three weeks or a month old that have not yet been supered may have a case of sections placed on them if the other stocks are collecting a surplus.

Manipulations should never be undertaken in the heat of the day, the bees are very savage, and well they might be, when thus disturbed; the early morning or before sunset are the most favourable times for making an inspection.

Sending Hives to Heather.—Where it is intended to convey the hives to the heather preparations should be made for the bees' safety on the journey. A special single walled travelling box is best, provided with squares of wood tacked on the sides to take the ends of the frames and prevent the combs from jarring. These strips of wood should not reach to the bottom of the box, but should afford a space of half an inch or more all round below them. With such a box provided, the frames and bees can be readily lifted out from their hive, placed in the box and fastened down for the journey. This is much safer than attempting to pack them up in their permanent hive, and is very little extra work, as doubling boxes would come in very well for this purpose.

Extracting.—This should be performed in the cool of the evening, after the bees have ceased flying. Great care should be taken to prevent the bees, if possible, getting a scent of the honey. In many instances, especially with Ligurians or Hybrids, even when the bees refuse the supers, honey may be extracted from the body-box, but do not extract from those frames containing brood. The best way to obtain the honey from these is to uncap it, and place the frame between two combs well filled with brood in the centre of the nest, when the bees will speedily clear it out, and store the honey in the outer frames. Do not extract the honey from unsealed combs, as it will only spoil the rest, if mixed with ripe honey.

Bees and Roses.—During this hot, dry weather, we have noticed several hive bees working double roses, but only those that distinctly show the stamens and pistils, such as, of course, are useless for exhibition purposes.

Packing Honey.—Those who have sections and bottled honey to sell cannot do better than follow the advice of friend Huckle (1139) in last week's *Journal*, and of Mr. Woodley (1128) of the week before; every pains certainly should be taken to relieve the show officials of unnecessary labour.

Goat and Bees.—The account on this subject in the issue of 23rd June should be borne in mind by every bee-keeper, not only goats but horses and cattle should be rigidly excluded from proximity to bee-hives. The owner evidently did the best he could under the circumstances; namely, got rid of the bees at once.

Disposing of Honey.—Let me remind bee-keepers now is not the time to get rid of your honey; keep it in a dry, cool place, and it will remain good till the winter, and if it is then kept in a dry, warm place it will keep till next year without any danger of spoiling. Honey will fetch a much better price in the winter than now, and last year's sections are often allowed to compete in early shows, when the present year is a bad one. We have seen and tasted honey in sections kept over some years, and should not have known it from freshly gathered, of course care was taken to keep it covered from the air.

Methyl Salicylate (Oil of Winter-Green).—We have tested this, and must say it affords a great protection, the bees do not seem to object to it; in fact, it rather soothes them, and though it does not attract the bees, two or three occasionally crawl on the hands and commence licking it off; we have experienced no unpleasant effects from its application.

ASSOCIATIONS.

NORFOLK AND NORWICH BEE-KEEPERS' ASSOCIATION.

This Association held their annual show in conjunction with the Rose Show on June 30th in the grounds of Carrow House (the residence of Mr. Colman) and of Carrow Abbey. It was a glorious day, and the show was well attended by the *élite* of the town and county. The roses were very fine indeed. The Rev. F. Page-Roberts, who we believe is a bee-keeper, obtained no less than four first and one third prizes for roses in the different classes.

In the bee department the exhibition of hives and appliances was small and not up to what one usually expects to see at an important show of this kind, the large firms of manufacturers of hives and appliances being conspicuous by their absence, although the prizes offered for the collections were good. It is a great question whether the time has not come when this class should be altered, and that the largest collection, which entails a large outlay for carriage, packing, unpacking, &c., and which limits the competition to one or two firms, should give place to a specified number of hives, &c., after the collection class in the Bury St. Edmunds schedule, which should increase both the number of exhibitors and the usefulness of the exhibits. The only hive of any merit, and well made, was exhibited by Mr. Blake. It consisted of body-box, a super, with shallow frames same size as hive, and a rack of sections with deep covers, the price being only 10*s.* 6*d.* The exhibition of both comb and extracted honey was very good, and the four judges took considerable time and pains to arrive at their unanimous decisions. The following is a list of the awards:—

Class 1.—For the best stock of Ligurian or other foreign bees: 1st prize, Mr. H. Beswick; 2nd, Mr. J. J. Rice. Class 2.—For the best collection of hives and bee appliances: 2nd prize, Mr. J. J. Rice. Class 3.—For the best complete and most practical hive: 1st prize, Mr. J. Blake, 2nd, Mr. Wren. Class 5.—For the best exhibition of super honey from one apiary: 1st prize, Mr. H. Beswick; 3rd, Mr. A. G. Copeman. Class 6.—For the best super of honey not in sections: 1st prize, Mr. C. G. Cooke; 2nd, Mrs. Kendle. Class 7.—For the best twelve 2-lb. sections of honey in the comb: 1st prize, Mr. H. Beswick; 2nd, Mrs. Kendle. Class 8.—For the best twenty-four 1-lb. sections of honey in the comb: 1st prize, Mr. C. J. Cooke; 2nd, Mr. M. Mason; 3rd, Mr. H. Beswick. Class 9.—For the best 24 lbs. of extracted honey in 1-lb. or 2-lb. glass jars: 1st prize, Mr. M. Mason; 2nd, Mr. J. Lawrence; 3rd, Mr. Reeve; extra 3rd, Mr. C. J. Cooke; highly commended, Mr. H. Beswick. Class 10.—For the largest and best collection of extracted honey in glass jars, Mr. A. West. Class 12.—For the best twelve 1-lb. sections, *bona-fide* cottagers: 1st prize, Mr. R. Howes; 2nd, Mr. J. Nichols; 3rd, Mr. J. Spanton, jun. Class 13.—For the best twelve 1-lb. bottles of honey, *bona-fide* cottagers: 1st prize, Mr. M. Mason; 2nd, Mr. Chaplin; 3rd, Mr. G. H. Richmond; highly commended, Mr. Goldhawke. Class 14.—For the best super of honey, open to *bona-fide* cottagers only: 1st prize, Mr. R. Howes; 2nd, Mr. Moore.

Mr. J. M. Hooker, who assisted in the judging, was also appointed by the B.B.K.A. to examine expert candidates. The Abbey and grounds were illuminated with much skill and taste during the evening.

BURY ST. EDMUNDS SHOW.

The following awards were made in the classes allotted to bees, hives, honey, &c., at the Suffolk Agricultural Show, held at Bury St. Edmunds on June 23 and following day, viz.:—For the best collection of hives, &c., 1st, Mr. Wright; 2nd, Edey & Sons. For the best twelve sections of comb and honey, $6\frac{1}{4} \times 5\frac{1}{4}$, Mr. H. Beswick; no second prize was awarded in this class. For the best twelve sections, $4\frac{1}{4} \times 4\frac{1}{4}$, 1st, G. E. Kemball; 2nd, H. Beswick; 3rd, G. E. Kemball. Highly commended, Miss Gayton and Dr McNab. Commended H. Beswick. This was an excellent class, consisting of thirteen entries. For the best exhibit of honey from one apiary. A third prize only was awarded in this class to Mr. H. Beswick. The Rev. George Raynor judged, and the arrangements were most efficiently made by Mr. Mr. H. C. Bunbury.

BERKSHIRE BEE-KEEPERS' ASSOCIATION.

The annual show of the above Association was fixed to take place at Windsor on July 14th. This date has been altered. It will probably take place the week after, but the day is not yet settled. The Hon. Sec. hopes this will catch the eye of those to whom he has sent schedules, and so apprise them of the change of date.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways and Sms, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *King's Langley, Herts (see 2nd page of Advertisements).*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

HOW COUSIN JONATHAN GETS COMB HONEY.

[1140.] Most of our readers have heard of Mr. Henry Alley, of Wenham, Mass., of queen-raising fame; he is the present editor of the American *Apiculturist*, a monthly bee-paper that is second to none in the value of its articles on points of real practical interest to bee-keepers. The number for June has five articles on comb honey from the pens of the following well-known American bee-keepers:—G. M. Doolittle, Dr. G. L. Tinker, A. E. Manum, Dr. C. C. Miller, and G. W. Demaree. To reprint them *in extenso* would be beyond the limits of these columns, so I will endeavour to give you a digest of them: the information is too late to be of benefit for the present honey crop, but as our minds are now occupied with honey-getting the facts will probably be more firmly fixed in our memories at the present time than they would be in the winter when bees are quiet.

Mr. Doolittle strongly emphasises the necessity of having good queens at the head of all stocks, and also the absolute necessity of having stocks full of young bees by the time the clover blooms, which with him is about June 15th. He advises spreading brood cautiously by turning sides to comb, uncapping sealed stores, removing the outside combs to the centre when bees are sufficiently strong to bear that treatment, but *not* till then, never letting the bees feel their larder is getting low, and by keeping the stocks warm with packing. He gives full sheets of foundation in his sections and gives the sections in rows, not a crate full at once, and does not give his sections in tiers, but spreads them out laterally even beyond the limits of the brood-chamber. Mr. Doolittle does not give full sheets of foundation to swarms in the brood-nest, and in common with most of our transatlantic cousins uses the 'honey-board,' or queen-excluder.

Dr. G. L. Tinker shows his appreciation of a strong stock of young bees by giving details as to wintering and building up in spring. He recommends sufficient stores in late autumn to last till May 1st, then give frames of sealed stores sufficient to last till the fruit-blossom crop and wraps all up warm. He winters on about 800 square inches of comb surface, and at the time of the fruit-bloom gives another case of combs of about the same capacity underneath the original one, so that the queen can extend her brood downwards and thus get from 1400 to 1800 square inches of brood ready to hatch out by about June 1st. This, the doctor contends, exhausts the queen so that she requires a rest, and will not hatch so many bees after the honey-glut is over. He uses full sheets of foundation in the sections for economy but starters for looks, and $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{7}{8}$ sections with dividers, but seven to the foot without. Narrow sections, he says, on a contracted brood-nest leads to pollen being stored in the sections, he also recommends the open-sided sections where separators are used. Dr. Tinker always puts at least one section containing comb partly built out the previous season as an inducement to the bees to enter. He tiers his super crates as we do in England, and has a say about inverting the brood-chamber and insists that no brood frame should be less than six inches deep. The doctor is very fond of swarms, having evidently never tried the non-swarming system of Germany and England, and gives a long description of his treatment of swarms and the construction of a honey board, on which the success of his system in his opinion entirely depends.

Mr. Manum uses the $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{7}{8}$ sections filled with full sheets of foundation, and fitted with wood separators. He goes in for quality and appearance, and gets his stocks strong enough to swarm by the time the white clover and raspberry bloom. He only allows each hive to swarm once, and gives one third of the swarm back to the old stock, unites the two-thirds of the swarm to the two-thirds of the next swarm that comes from another hive, and so has large colonies without impoverishing the old stocks or increasing the number of his hives unduly. If the stocks swarm late he returns one-half and puts four half swarms together, his object being, of course, to have all sufficiently strong to work in supers. He also tiers his sections, having had, he says, as many as six sets, containing in all 192 sections on at one time. He sometimes inverts the sections to get them better finished, and places the outside ones in the middle and *vice versâ* if necessary. He also gives a chapter on introducing queens by cages, a subject on which they can all learn from John Bull if they will.

Dr. C. C. Miller says the two first requisites of success are plenty of bees and plenty of pasturage. To get this he gives plenty of stores in autumn and little or no meddling. The doctor's crates hold each twenty-four 1-lb. sections, and he points out the advantage of giving a partly-filled section as an inducement to the bees to commence. If one stock is earlier than another he goes so far as to divide the first crate of partly-filled sections amongst the others. He also gives his sections by crates, adding the empty crate underneath in the early part of the season and on the top later on. He uses the Heddon slat honey-board as a queen-excluder, and takes the middle sections away as soon as filled, putting the outside ones into the centre of the crate to be finished. Dr. Miller's honey-flow is evidently not so good as some of the other contributors.

Mr. Demaree prepares for his honey harvest late in the previous autumn, packing his hives up strong with young bees, plenty of stores, and takes care to leave them alone during winter. He deprecates 'brood-spreading' and

inverting brood combs, but is not dictatorial to others who prefer that plan. He also prefers to contract deep frames to tiering shallow frames, and contracts his brood chamber by allowing the outer frames to be filled with honey instead of contracting them by dummies during the time the bees are filling supers. This gentleman uses full sheets in sections if the honey flow comes in a short 'rush,' but starters only if it is continuous and steady. He also tiers sections by crates, grouping the partly-filled sections downwards to get them finished off at the end of the season, but says nothing about the use of partly-filled sections as a start to the bees.

The number of the *Apiculturist* is an excellent one and can be read by all with profit. By it we can test our own methods and practice, and see how far we are behind or before our cousins over yonder.

In all probability, by the time my readers are conning over these lines Mr. Cowan will be on the deck of one of the best 'Cunard liners' on his way to see 'Cousin Jonathan' as well as our old friends in Canada. I hope he will see some of these sections taken off and the efficient bee-masters that have written the articles, and that he may have a prosperous trip and a safe return to the old country, his brother bee-keepers, and the *B. B. J.* —AMATEUR EXPERT.

APIFUGE: A LADY'S EXPERIENCE.

[1141.] With regard to Apifuge I should like to say that I find it most successful. Hitherto my bees have always stung my hands (I wear a veil) as I do not like working in gloves. The stings with me are most inconvenient, as they swell and stiffen, rendering me helpless for fully a day. Since using the Apifuge I can put my hands into a hive without fear; and on Saturday last I removed seventeen filled sections crowded with bees from the top of a not very good-tempered lot without receiving one sting. As for my smoker I never light it now. I do not suffer from any after effects, it is as innocuous to me as water. This from a lady bee-keeper ought to give others confidence. I hope many will try it, and find the comfort from it that I do. —BEE-KAY, *Waltham Firs, Great Grimsby.*

DE QUIBUSDAM.

[1142.] I am trying 'Apifuge' with success. It has no ill effect on me, and the bees seem startled at it. One suddenly alights on your hand and—'Halloo! what's this?' he seems to start in amazement and forgets to sting. That he will *never* do so while you use the article must not be expected. Its use increases confidence, which is a great thing. Moreover it seems to have a similar effect on the bees to smoke. They run down and bury their heads in unsealed cells. Wasps are unusually scarce this year; I don't think I have seen half-a-dozen.

At the beginning of this week bees were very busy on laurel, ilex, sycamore, and various other leaves. There had been a refreshing dew, and small dots of moisture were visible on the foliage. There the bees were at work for honey dew, I presume, and it seemed to me that the warm, moist drops draw forth some flavour from the foliage, and that the bees get moisture and some other article at the same time.

You have lately given some useful directions to beginners. To some of them a difficulty may arise in getting bees out of certain crates. If you have not helped them I hope I shall not be considered presumptuous if I point out how easy the work is after all.

Three days ago I took from a skep a good example of Abbott's Cottager's crate. Through the four glass sides you see four fine seams of honey. Of course there were hundreds of bees in it. I put a seacale pot just out of the sun near the hive, mouth up, with two slips of wood laid parallel to one another towards one side. On these I placed the crate, covering it over with a cloth on all sides, but letting light in to the pot between one of its sides and the crate. Late in the evening I returned; all the bees except two had gone down and out. I removed the crate, laid it gently on one of its sides, still covering all, turning the opening at the bottom (a round one) to the light. In two or three minutes the captain and mate left the ship.

Why does my good friend Mr. Griffin spell his excellent article 'dubbin' after the fashion of an illiterate country saddler? We do not put 'blackin' on our boots, or clean our tinned ware with 'whitin.'—C. R. S.

HONEY ASSOCIATIONS.

[1143.] In the editorial for June 30th of *British Bee Journal* the important question is asked, Whether the demand for honey is increasing proportionately to the enlarged supply? I say that it is *not*. The supply of honey is not so great as it might be with better management, but it increases every year, and at a faster rate than the demand. The abolition of the sulphur-pit is the fundamental cause of the rapid increase in the number of stocks, and to a great extent the enlarged supply of honey. The amount of honey imported is insignificant and on the decline, and no longer any justification for the reckless policy of our Bee Associations.

Every Association has for its avowed object the benefit of bee-keepers, especially the cottager, and anyone who did not know better would imagine that all their efforts were devoted to that end, but, unfortunately, by some means or other, the bee-keeper, and especially the cottager, derives but small benefit. The motives of B. K. Associations are good, no doubt, but their policy is bad. The all-important question is obtaining *new* members, and if the Report shows an excess of new members over those who have left disappointed and disheartened, to say the least the Association is said to be in a prosperous condition. It matters not how many leave, so long as others are found to join. Then, as regards expenditure, how can we account for the almost invariable deficit at the end of the year? Has the cottager cost too much? Certainly not; the money has been expended in fishing for new members so as to make the Association *strong*. But, alas! they vanish. An Association's strength does not lie in its numbers, but in the unity, prosperity, and satisfaction of those it does possess. One volunteer is worth two pressed members, and it is better to let them *come* than drag them in.

How much money has there been expended on the bee tent manipulations, and where is the *single member* who has derived one pennyworth of good from them? The bee tent is *not* for bee-keepers, and they never ought to enter after keeping bees one season. A skep of bees is taken into a netted arena, and after a good supply of smoke and honey to make the bees harmless, an expert, perhaps covered with some intimidant, bravely frightens them from one skep to another, and then the said expert, who is often a manufacturer of appliances, gives a 'lecture' on bee-keeping, which is simply an advertising medium for his goods.

What exaggerations! How the dark side is kept out! How *painful* to the experienced apiarist to stand and listen to such statements as the following—'Scarcely any outlay and but little risk!' 'A hundredweight of honey per hive at from a shilling per lb. upwards!' But these are mild compared with some I have heard. However, a convert is made and some appliances sold, the poor bee-keeping cottager's money having done both. Shows ought to be held when possible for the exhibition

of our produce, as they are beneficial to *bee-keepers*, but the *bee tent* and '*lectures*' ought to be done away with at once.—LOOKER-ON.

MR. S. SIMMINS ON BUYING AND INTRODUCING QUEENS.

[1144.] In your issue of the 23rd inst. there appears a letter from Mr. Simmins offering to purchasers of young queens some excellent advice; and as the advice he gives applies so very aptly to myself, I purpose, in great measure at least, in future to follow it. 'In spring,' says your correspondent, 'how many there are who, finding a stock queenless, send off for a new queen. How much better to unite at once, for what does the dealer from whom he purchases? He runs considerable risk in wintering nuclei for the sake of the young queens, as he is aware they are much sought after early in the season. As the queens are disposed of, often to be introduced to colonies (?) weaker than the nuclei they are sold from, the dealer unites, thus gaining strength while pocketing cash into the bargain, the purchaser often finding, to his regret, that his bees have not sufficient "backbone" left to do the new queen justice. If one must try a new variety, why not give her foreign majesty a fair trial, with at least an average stock in good heart, and thus be in a position to give a full and faithful report?'

About the middle of April, examining my stocks, I found three whose queens were drone-breeders, two of which were young queens hatched out in the early part of the season of 1886, and exceptionally active and fertile. A mild open winter before Christmas, an inordinately severe and prolonged one afterwards, had in my opinion injured the young queens, and I determined therefore to replace them at the earliest. The stocks were crowded upon eight frames, and were, to say the least, strong. I wrote to one of our largest queen-rearers and dealers, asking when, at the earliest, he could send me queens of a certain kind. He replied that, weather permitting, he could let me have them by the middle of May. I thereupon ordered two, and of course forwarded the amount due for them. Now, sir, this is the 25th of June, and my queens have not arrived. I have waited from day to day, hoping and trusting, but up to this present in vain. In May I wrote and asked the dealer to apprise me, by letter or post-card, two days before sending on the queens, of his intention of doing so, in order that I might have the old queens removed and the hives ready for the reception of the new, and this he very kindly promised to do. On June 16th I am informed that 'having had no fine weather here until the 9th, we are behind with queens, but hope to attend to you very soon now.' Despairing, I wait no longer, but, taking out the drone-breeders, unite the bees to other hives; a course of action that I clearly should have two months before adopted.

I am quite aware that the spring has been exceptionally severe, and that, do what one could, hives were and are backward, and the coldness and severity of the weather here are much greater than in the south of England at any time. We seldom have less than seven months' winter, and more frequently eight, *i.e.*, from October until May; and yet young queens, even in this cold region, have hatched out in April, and been fertilised by the end of May, nearly a month agone. Let me give a case in point. In the early part of April, one of my strongest hives—*the* strongest then—swarmed out (it being an unusually warm bright day) to get a cleansing flight. The bees were crowded upon ten frames, and the hive was increasing mightily. The queen was of last year's rearing. Well, as I have remarked, they swarmed out. I was from home at the time, and did not return until evening, when a friend of mine, who was working in my garden told me of the circumstance. Going to the hive, I found it still in a state of great excitement, and I concluded, therefore, that her majesty had been lost in the flight. Some four days after this, it having become warm again, I opened the hive and found five unsealed queen-cells. This confirmed my opinion respecting the loss of the queen. I had purposed opening the hive again in due time, cutting out three queen-cells and introducing them into the two hives in which were the drone-breeding queens; but, unfortunately the weather became so prolongedly and intensely cold that I dare not. When I did open the hive, however, and which was about three weeks afterwards, all the queen-cells had been cut down, and the young, unfertilised queen was upon the combs; all others of the young queens, if any had been permitted to hatch out, having disappeared. A fortnight passed, and the hive having again become restless and excited, I again opened and examined it. No evidence of a queen, no young brood, not an egg. I thereupon introduced a frame of eggs from a Syrian stock as a test experiment, *i.e.*, if the bees drew down queen-cells, their young, unfertilised queen must have been lost; but if no queen-cells were drawn down, she, although still unfertilised, was safe among them. Some four or more days after this, I again examined the frame I had introduced, but not one queen-cell existed, and as further proof of the young queen's presence, she was actively laying, and was therefore fertilised.

But, sir, what I would wish to be understood, as deducing from the foregoing is this:—While many bee-keepers are (and truly according to Mr. Simmins) wrong in not at once uniting, and thereby, although diminishing the number of their stocks, increasing the strength of those which remain, dealers in queens may possibly err in misleading their customers as to the length of time they may have to wait before their wants are supplied. My young queens were first expected to be forwarded about the middle of May. June 16th arrives, and 'it is hoped that the queens may be sent very soon.' June 25th is here, but the queens are not. Surely if we, living in one of the coldest counties in the north of England, hundreds of feet above the sea-level, with scarcely ever less than twelve feet of snow from first to last during the winter, and this of almost arctic length and severity, can have swarms (and these are neither few nor far between), and can get queens hatched out in April, and fertilised and laying in May, surely, I say, dealers and queen-rearers, domiciled in the south, and owning, perhaps, 300 or 400 stocks, should be able to despatch queen before June 25th, in this the year of Her Majesty's Jubilee! My queens are coming, and so is Christmas. They are to be beauties of their race, and this, from my knowledge of their rearer, I can very easily credit; but they must come soon to be of use, and even then I must impoverish some of my strongest stocks to 'give each her foreign majesty a fair trial.'

Mr. Simmins opportunely indicates how, by the insertion of a comb with eggs, to prove the existence or non-existence of a virgin queen in a hive. It will have been seen from the foregoing that I am enabled to verify the correctness of his statement.

In concluding this letter, I have to remark that my stocks were strong when I placed myself in communication with the queen-rearer, *i.e.*, they were crowded each upon eight frames. Had uniting with other stocks not been had recourse to, upon how many frames would they be had they been permitted to remain to this day? How much 'backbone' left to do the new queen justice? —EDWARD C. ANDERSON, *Lydgate House, Wolsingham, Darlington, June 25th.*

P.S. Much has been urged against Syrians and their non-wintering characteristics, and, in addition their fierceness and vindictiveness. The Syrian stock, from which I took the frame of eggs to place in the hive as a test experiment, I have had three seasons. They are pure, or very nearly so. I have found them the hardest

workers, the most prolific, under careful, gentle management the most docile, and the best winterers of any bees of any kind in my apiary. The queen of this stock I have had three seasons. She now reigns over eighteen standard frames, twelve of which contain brood, most of them full from top to bottom. The stock is contained in a twin hive, with south and east entrances, and both are open. I shall, after the bees are thoroughly accustomed to go in and out of both the entrances, *i.e.*, in the course of a week, place a division-board in their midst, and thus separate them into two. The one therefore queenless will, I doubt not, soon proceed to erect queen-cells, &c.; meanwhile, I anticipate that the bees in each hive will remain of their average strength.

AMERICAN 'ARTIFICIAL HONEY.'

[1145.] At the annual conversazione of our North-east I.B.K.A. one of the queries, which it fell to my lot to answer, was, 'What is Californian honey?' and my reply was, 'Californian honey is honey or nectar gathered by bees just as our own do, but what is sold as "*Californian orange-blossom and cherry-blossom honey*" is a chemical compound of syrup with a little flavouring;' and I am sure any one who knows the taste of pure honey, and has 'sampled' the 'Californian honey,' will agree with me. Of course, if persons are satisfied with the imitation article, they are welcome to the delusion; and for their benefit, that they may have a cheap and as little nasty article as possible, I send them the following receipt for the making of artificial honey from an American print:—

'*Artificial Honey.*—Three pounds loaf sugar, one pint water, two ounces gum arabic. Dissolve the gum in the water, add the sugar, and boil for twenty minutes taking care that it does not burn. Now flavour with *five drops* of a mixture made as follows:—Oil of rose, ten drops; oil of peppermint, twenty drops; oil of spearmint, ten drops; essence of jasmine, half ounce; alcohol, two ounces. When the five drops of this mixture are stirred well in, add a little tincture of saffron, and the "honey" is ready for sale when cold.'—H. W. Lett, M.A., *Aghaderg Glebe, Loughbrickland, Co. Down.*

'MELLA.'

[1146.] I am pleased to see you refer to this refreshing drink in last week's *Journal*, for I believe it only requires to be tasted to insure its being appreciated. I supplied my friends with half a gross on the day of the Queen's procession to Westminster Abbey, and they one and all spoke in high praise of it. One great charm it possesses over similar beverages is that it leaves the palate so perfectly clean and fresh, whereas most of the sugar-sweetened drinks leave the palate clogged and sticky, and this advantage that 'Mella' possesses is, I believe, solely due to its being sweetened with pure honey. Its peculiar power of assuaging thirst is due to the healthy action of the honey on the salivary glands.—H. Jonas.

Mr. Spurgeon and the Hornets' Nest.—Mr. Spurgeon, speaking at a Blue Ribbon Society meeting, related the following anecdote:—He had once had a hornets' nest in his garden. He tried to kill the hornets singly, but it took him a long time to dispose even of one. At last, on a fine night—he did not previously tell them of his intention—he heated a poker red-hot and dropped it in the hole where they were. He did not stay any longer, but at once went in for meditation. He never saw another hornet. They seemed to be so pleased with the poker that they stopped in their hole for ever afterwards. The living fire of the Gospel was wanted to burn, not one special sin only, but all sins from the human heart.

FOR BOYS AND GIRLS.

The Queen and the Bees.

I want this morning to do three things. I want to tell you a story; to give you a text; and to ask you to learn two lessons. The story is one which I saw in the papers only last week, and it is this. A fortnight ago, the Queen, as you may remember, was travelling from Scotland to London. She was coming up from her Highland home at Balmoral to take part in those great Jubilee festivities of which, ten days ago, we all heard and talked so much. Now all of you know that when the Queen travels by rail every provision is made for her comfort, and every precaution is taken for her safety. And so, no doubt, it was then. But there are things which even kings and queens, and those who make arrangements for them, are unable to control, and thus it was in the case before us. At a certain point on the road there was a signal, and in proper course the signal should have shown a light. But when the driver of the Queen's train approached, behold all was dark! There was the post, and there was the lamp, but in it was no light. Under such circumstances the rule is to stop. Accordingly the driver stopped his engine, and with it stopped the royal train.

What was the explanation? The explanation is said to have been this: a swarm of bees attracted by the light had crowded into the signal lamp, and by the sheer weight of numbers had extinguished its light and so made the signal void. Thus the bees put out the light by which the Queen of England had to travel, and stopped her royal progress. Now I want you to learn from this curious story these two lessons:—

I. Learn, first, what great things can be accomplished by very little things when they are united, or, as we say, banded together.

One bee could have done nothing towards extinguishing the light: it would only have been itself destroyed had it attempted to have done so; but united, banded together, these bees succeeded in accomplishing the task. So, boys and girls singly are weak, and comparatively powerless, but united, banded together, how much they are able to accomplish. This is why we ask you to join Bands of Hope, and Sunday Schools, and Christian Churches, that you may be the better able to do good work in the world, and so to serve your day and generation.

II. Learn, secondly, how much harm may be accomplished by little things, and especially by little things combined.

The bee is a very tiny creature, but the bees combined put out the Royal light, and stopped the Royal progress. Now, God wishes you all to be His kings and queens—'He hath made us kings and priests to God.' But if you are to be kings and queens, you must have light—the light of conscience—the light of truth—and the light which comes from Jesus Christ, God's Son. You must have light by which to travel; and you must also make progress—a royal progress, though it be a pilgrim's progress—from this world to the brighter, better world which is on high.

And what you ought to remember is that it is quite possible for your light to be extinguished and your progress stopped, and that by very little things. You are not likely, while you are children, to be tempted to commit great sins—you are not likely, so long as you are boys and girls, to be guilty of murder, or of burglary, or of forgery, or even of intemperance—but you are very likely to be tempted to little sins, or sins which you regard as little, to little untruths, to little dishonesties, to little acts of disobedience, to little failures in work and duty, to little thoughts of envy or jealousy, of unkindness, or of pride; and these little sins indulged in are quite sufficient to put out your light and stop your onward progress.

As the bees made the lamp, which should have been light, all dark, so will these little sins make your souls all dark; and as the bees stopped the onward progress of the Queen, bound though she was to all the joy and the triumph of her Jubilee, so will these little sins hinder and stop your progress to glory and eternal life.

So now I will give you my text—'They compassed me about' (says the Psalmist), 'they compassed me about like bees; but in the name of the Lord will I destroy them.' These little temptations, as you may call them, will certainly compass you about. There is not one of you whom they will not compass about. If you would retain your light—if you would continue your heavenward journey in the name of the Lord by His grace and with His strength—in the name of the Lord you must destroy them. God help you all to do so!

[The above sermonette was preached on the morning of Sunday, July 3, by the Rev. J. Byles of Ealing to the children of his flock. The circumstance on which it was founded was given by us last week. Some of our correspondents have cast some doubt on its authenticity, and have promised to endeavour to verify the story.—Ed.]

Echoes from the Hives.

Odcombe, Ilminster, July 2nd.—I have been very busy for the past fortnight extracting and removing sections, but now, although the weather continues most splendid, the flow of honey is diminishing in consequence of the mowing machines having completed their work round here, but the white clover will afford supplies for some time to come, especially if we get a few showers of rain shortly. I have given a fair trial to the four bee-way sections without separators, and find they are completed more quickly and quite as evenly as the close-sided ones with separators. On the 30th ult. I removed two crates of sections of twenty-four each from one hive all perfectly sealed and even, in fact, quite interchangeable; these had the open sides and no separators, no propolis, and sections almost as clean as when put on. I have always looked on separators as a nuisance, but a necessary evil, and for the future shall work without them, but such good results will not, according to my experience, be obtained unless open-sided sections be used, as the bee-ways appear to form the boundary between each comb. I am always careful to apply the spirit level to each hive before supering or putting in foundation. I have tried the plan of putting a handkerchief damped with weak carbolic solution over the sections or frames when removing them, as I have seen recommended in the *Journal*, and find it quite a success, as it is much more effectual in driving the bees down out of the supers than smoke and no troublesome smoker to be attended to. —J. Sarell.

South Cornwall, July 2nd.—We have certainly been having a very remarkable season. In May the orchards were ablaze with such a display of blossom as had not greeted our eyes for sixteen years. But for many days there was a great deal of fog, and the bees could not fly freely. Yet it was warm, and nectar seemed in process of being developed, so that when the sun shone out of an afternoon the bees worked with a will. Then came the great heat suddenly, and hawthorn followed apple bloom, to be succeeded by charlock, which has been more abundant than usual, to the trouble of the farmer, for 'what is one man's meat, is another man's poison.' At a far earlier date than usual, we found white clover opening, so that for six weeks there has been no cessation of work. Alas! that the heat has dried up the pasture, and clover is well-nigh at an end for the time. I say 'for the time,' for should the much-desired rain speedily fall, I have great hopes that we may have a second crop of that on which our honey harvest chiefly depends. The first crop has been a small one, and for some days the flow of honey has not been great. Nevertheless, I can show a nice lot of well-filled sections. I should say that clover is about three weeks earlier than usual.

Glanclywedog, Llanidloes, July 4th.—I have just taken about 35 lbs. of honey from one of my hives, samples of which I send you, and I should very much like to know your opinion of it. I have been getting my bees to build out as many sections as possible, to be ready for the heath honey. The above honey is some extracted from unsealed sections. It was just twelve months to-day I commenced bee-keeping, but the first stocks I had got so much knocked about in transit that they all died in about three weeks. About last August I got a hive of bees on ten frames. Later on I got three lots of condemned bees which I successfully hived, making two lots of them. These three stocks came through the winter safely. No. 1 stock: 2 bodies with 22 standard frames, and 1 crate of 21 sections, ready for 2nd crate. No. 2: 10 frames and 108 sections, 35 lbs. of honey extracted to-day, remaining sections three parts filled. No. 3: 2 bodies (22 frames) and about 90 sections, more than half sealed. How is this for success? I may here say that I have taken the *B. B. J.* and attribute most of my knowledge of bee-keeping to its pages. As one of a great many I tender you my best thanks for the very valuable information it contains week after week. Beside the 35 lbs. extracted to-day, I have taken at least 25 lbs. from the frames in the different hives this season.—W. H. H.

[The darker honey is unexceptionably good, both in flavour and consistency; the lighter requires ripening, and though of good body, you would not find it marketable. Your success has been grand.—Ed.]

NOTICES TO CORRESPONDENTS & INQUIRERS.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

Ll. E.—The bees will leave the glass jar if it be taken to a darkened room where they will fly to the light; or use a box fitted with a bee-trap so that they can get out but not in. 2. *Extracting and Feeding.*—Extracting should be completed as soon as possible after the close of the honey harvest. If, after the honey harvest you keep the bees breeding by stimulative feeding, this should be discontinued by the middle of September, and the stocks then fed up as rapidly as possible with syrup of a thicker consistency than that used for stimulative feeding. 3. Swarms have been known to fly long distances in search of a location. 4. *Bees in a tree.*—The only way of driving bees from the tree would be to inject smoke through a hole below the nest and drive them into a skep placed above. It will be necessary to secure the queen. The operation is a difficult one; and except in the hands of an expert there is much probability of its failure.

A. H.—1. *Erratic Swarm.*—Bees do nothing invariably: so it is with swarming. Whenever we find a swarm leave a bar-frame hive, after placing them in one, we provide them with a frame of uncapped brood. They, like many insects and animals have a strong attachment to their young—although with bees it is any other bees' young as well; and this prevents their leaving the hive. An idea prevails among several advanced bee-keepers, that when a swarm clusters they send out scouts in order to find a location, these returning lead the swarm off to the place they have chosen; if so, moving the hive some distance away from the position they clustered on before scouts returned would have the desired effect. 2. *Cast on Back Frames.*—Remove the front frames now they have got properly to work on back ones, and add gradually. 3. *Bees tumbling out of Hive.*—No doubt it was one carrying out a dead bee or a robber. The queen does not 'tumble out' in the arms of her consort in so unceremonious a manner.

Northumbria.—*Mr. Webster's Tour in Northumberland.*—You will see that a further account of same is published in the *Bee Journal* of the 23rd ult., and also another in the issue of 30th.

M. E. Kirk.—1. *Injured Queen.*—The queen sent was very badly injured on the third segment of her abdomen. This could be seen from the outside; any internal examination was impossible, as she was dried and decomposed beyond such. You did quite right in adding the swarm. It is sometimes eight or ten days before a queen commences to lay, and even longer. 2. *Bees attacking Chickens.*—Numberless cases of this description have come under our notice.

D. M.—*American Cloth.*—There is no objection to the use of American cloth over sections.

Exton.—*Winter Stores.*—Leave the capped stores in the body hive untouched, they will be of service for the winter.

Ashleigh.—*Re-queening.*—When you observe symptoms of failure in your queens will be the proper time for re-queening.

T. D. Schofield.—The bees are best-tempered when they are busy bringing in honey, this would be the best time for manipulating. Manipulation should only be performed when absolutely necessary. Over-manipulation will make the bees savage, and is injurious to the stock.

J. A. J.—*Bees building outside Super.*—As the super does not cover the frames, and the bees have made their way into the space outside the super and bar, and built comb between the inside and the outside walls, the sooner the extra comb is excised the better. Use a little smoke to remove the bees, and the comb can be easily cut away to the level of the top of the frames with a common table-knife. To prevent the repetition of such an occurrence cover the ends of the frames with a piece of flannel or wood, and so oblige the bees to store their honey in the recognised receptacle. If one super be not sufficient place a second under it.

C. D.—*Transferring.*—The bees are re-establishing themselves now, and transferring should be postponed to the end of the season.

E. Sag.—1. *Separators.*—Have you foundation in your sections, and has it been inserted in the middle of the top-bar? If these conditions have been observed the bees would not, except in isolated cases, have built to the separators.—2. *Bees Hanging Outside.*—To prevent the bees hanging outside in the idle way described, we should recommend that the hive be raised, and a frame-hive or a flat-topped skep be placed on the stand under the old hive, when the bees would in all probability take possession of it; or drive them in by smoke. Most probably the skep is clogged with honey, and the bees have nowhere to store their honey.

Show Announcements.

Giving Name and Address of Secretary, Date and Place of Show, Date of Closing Entries. Terms: Three Insertions and under, Two Shillings and Sixpence; additional insertions, Sixpence each. No charge made to Associations whose Shows are announced in our general Advertising Columns.

July 11-15.—Royal Agricultural Show at Newcastle-on-Tyne. J. Huckle, Kings Langley.

July 14.—Oxfordshire Association at Headington. Hon. Sec., Rev. F. C. Dillon, Enstone.

July 21.—Prescot Horticultural Show. R. Rigby, Secretary, Station Road, Prescot, Lancashire.

July 20-22.—Lincolnshire Agricultural Society at Spalding. Entries close July 4. R. R. Godfrey, Secretary.

July 26-28.—Gloucestershire Agricultural Show at Cheltenham. Entries close July 12. W. D. Slade, Sec.

July 26, 27.—Warwick Agricultural Society at Sutton Coldfield. J. N. Bower, Secretary.

July 27.—Bishops Waltham Show. (Hants and Isle of Wight Association.) H. W. West, Hon. Sec., Swanmore House, Bishops Waltham.

August 3-5.—Yorkshire Agricultural Society at York. Secretary, H. L. Rickards, Poole, near Leeds.

August 9, 10.—Irish Bee-keepers' Association at Salthill Gardens, near Dublin. Entries close August 2. Hon. Sec., Henry Chenevix, Blackrock, Dublin.

August 14.—Handbridge, Chester St. Mary's Horticultural Show. W. E. Little, Hon. Secretary, Eastgate Row, Chester.

August 24.—Lancaster Agricultural Show. W. Liddell, Hon. Secretary, Dale Street, Lancaster.

August 31-Sept. 3.—Royal Manchester and Liverpool Agricultural Show at Manchester. W. Lees McClure, Hon. Secretary, The Lathoms, Prescot, Lancashire.

Business Directory.

For the use of Manufacturers and Purchasers of Bee-keeping Appliances.

The Name and Address and Business of any Manufacturer will be inserted in this List, under one heading, for One Pound per annum. Additional headings, Five Shillings extra. Advertisers in 'The Bee Journal,' whose orders amount to Five Pounds per annum, will be inserted Free.

HIVES AND OTHER APPLIANCES.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
Appleton, H. M., 256A Hotwell Road, Bristol.
Baker, W. B., Muskham, Newark.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
British Bee-keepers' Stores, 23 Cornhill, E.C.
Burtt, E. J., Stroud Road, Gloucester.
Edey & Son, St. Neots.
Howard, J. H., Holme, Peterborough.
Hutchings, A. F., St. Mary Cray, Kent.
Meadham, M., Huntington, Hereford.
Meadows, W. P., Syston, Leicester.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
Stothard, G., Welwyn, Herts.
Webster, W. B., Wokingham.
Woodley, A. D., 26 Donnington Road, Reading.
Wren & Son, 139 High Street, Lowestoft.

HONEY MERCHANTS.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
Baker, W. B., Muskham, Newark.
Baldwin, S. J., Bromley, Kent.
British Bee-keepers' Stores, 23 Cornhill, E.C.
British Honey Co., Limited, 17 King William St., Strand.
Edey & Sons, St. Neots.
Howard, J. H., Holme, Peterborough.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.

FOREIGN BEES AND QUEENS.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
Baker, W. B., Muskham, Newark.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
Benton, F., Munich, Germany
Edey & Sons, St. Neots.
Howard, J. H., Holme, Peterborough.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
Simmins, S., Rottingdean, near Brighton.

METAL ENDS.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
Baker, W. B., Muskham, Newark.
Baldwin, S. J., Bromley, Kent.
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British Bee-keepers' Stores, 23 Cornhill, E.C.
Edey & Sons, St. Neots.
Lyon, F., 94 Harleyford Road, London, S.E.
Meadows, W. P., Syston, Leicester.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.

COMB FOUNDATION.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
British Bee-keepers' Stores, 23 Cornhill, E.C.
Edey & Sons, St. Neots.
Howard, J. H., Holme, Peterborough.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
Stothard, G., Welwyn, Herts.

HONEY GLASS MERCHANTS.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
Pearson, F., Stockton Heath, Warrington.

WANTED.—A PARTNER with £500, to join a Practical Apiarist and Queen-raiser, holding a First Class Certificate of the British Bee-keepers' Association, for the purpose of Raising Ligurian Queen Bees in the Island of Kangaroo, South Australia. Address, W. G. CAMPBELL, S.S. 'Port Pirie,' Adelaide, to end of August; subsequently c/o MARSHALL BROS., 106 Market Street, Sydney, Australia.

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WIRE GAUZE FRONTS, 1*s.* 2*d.* each, 3 for 3*s.* Traps for Cleaning Supers, 6*d.* each, 3 for 1*s.* Post free. Address, W. CRISP, Halstead, Essex. A 2700

BORAGE.—Good Strong Plants, 5*s.* per 1000. SEED, 4*s.* per lb. Apply Estate Office, Toddington, Winchcombe.

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SUPER, 2 lbs. for 5/-.

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THE only perfect pattern. The metal being flush with the inside of the Hive side, CANNOT BE FIXED TO IT BY PROPOLIS. All the so-called Improvements CAN.

The Special Alloy used allows them to be LIGHT YET STRONG. One gross weighs 5¼ lbs.

Price for 1887 **5/6** per gross.

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Prize Medal, 1879, for the best Bee Dress. The only Medal ever awarded to a Veil, **2/2** each, post free. Every genuine Veil bears the Registered Trade Mark.

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The ONLY CURE for Stings, **1/8** per bottle, post free.

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Methyl Salicylate, or 'Sting Preventer.'

1 oz. bottle, post free, **1/8.**

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Entirely supersedes the Smoker, both in Simplicity and Effectiveness. No 'going out.' No tainting or soiling of combs. Always ready for use without any preparation. Can be carried in pocket.

With Bellows, 4s. 6d.; postage, 4½d.
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Can be adjusted to any ordinary smoker bellows.

6 oz. Bottles of Agent—carbolic acid, oil of tar, and water proportionably mixed—6d. each.

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With this appliance, frames can be removed from hive. Examined on both sides and replaced without inverting, and with one hand only, leaving the other free to perform any manipulation, at the same time preventing the soiling of hands with propolis. 1s. 6d. each. Postage 3d.

Send for ILLUSTRATED CATALOGUE of all descriptions of Appliances. Post free on receipt of post-card.

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2nd Prize Bronze Medal, Colonial and Indian Exhibition, for useful Inventions introduced since 1883.
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'I am delighted with its action. In about five minutes I had all the bees out of a very large skep. It does its work much more clear than the Smoker, and your vision is not obstructed by smoke in operating.'—A. W., MONMOUTHSHIRE.

'Was away on expert work and came across a strong cross-bred stock with a very bad character, a few days before they had completely baffled their owner. I found them with very slight fumigation as quiet as sheep. I and all who have seen it used are very much pleased with it.'—W. E. B., WILTS.

'I have used your Fumigator and find it more effectual than a Smoker.'—S. L. G. H., HERTS.

'Fumigator was more effective with a hive of Syrians than anything I have yet adopted.'—B. E. W.

'I have the pleasure of hearing the strongest testimony to the value of your Fumigator as a bee-quieter.'—G. A. P., IRELAND.

'I think it is a great boon; myself, I shall never use a Smoker again.'—W. W. W., YORKS.

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'I am quite satisfied with it.'—H. B., ESSEX.

'I find it acts well with the bees.'—C. D. C., SURREY.

'I have much pleasure in bearing testimony to the value of your invention.'—W. V. R., DEVON.

'I have used your Fumigator with great success and approval.'—W. G. C., EXPERT (1st Class), BRITISH B.K.A.

'I like it exceedingly.'—B. L., SUSSEX.

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'I must say that it is most efficient; I have done with smoke.'—H. W. W.

'It gives me great pleasure to be able to praise your grand invention so highly.'—J. M.

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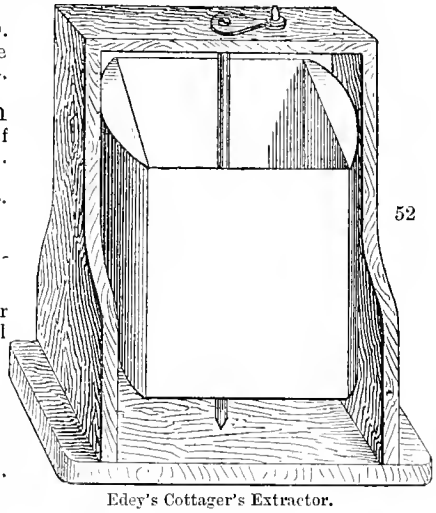

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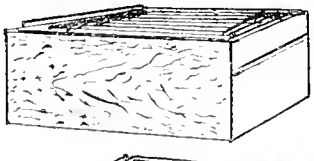

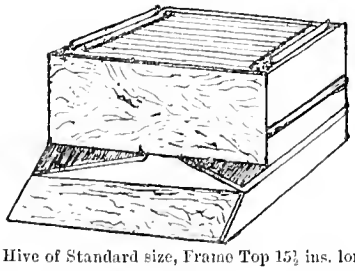

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THE BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, Cambridge Circus, W.C.'

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Editorial, Notices, &c.

WASPS.

We have of late been much exercised in our minds by the reports which have reached us respecting the paucity of wasps. What has become of them? They have not recovered from the singular fatality which swept over them last year. They have 'fallen from their high estate,' and they now appear to be lying in a low and abject condition. One correspondent lately remarked that he had not seen a single wasp this year, and inquired whether they had disappeared from the face of the earth; another said in our last issue, 'Wasps are unusually scarce this year; I don't think I have seen half-a-dozen.' In the spring we heard little of the appearance of queen-wasps; and so far as reports reached us we might say that their number might be counted 'on the fingers of one hand.' And this condition draws forth no sympathy for these insects. While we hear of hobbies being made of humble bees, beetles, ants, butterflies, &c., who ever heard of wasps being so affectionately treated, or of anyone desirous of cultivating a closer acquaintance with them? Wasps are a kind of Ishmaelitish insect, 'their hand is against every man, and every man's hand is against them.'

What a contrast does the report of queen-wasps this year present with the large number that were seen and captured in the spring of the preceding. Then we heard of these wasps being killed by the hundreds; and in one Devonian village above a thousand were destroyed. We fear that the 'wasping season' this year has not been a success, or very profitable to those village lads and lasses who by the capture and destruction of those insects manage to gain some little addition to their pocket money. We are inclined to think that last year the employed gained an advantage over those that employed them; for, as the result proved, not one in the hundred of those destroyed would have become, had their lives been spared, founders of colonies of wasps. It was evident, that, owing to some natural obliquity, the female wasps at the close of the autumn of the previous year when they retired to their winter's sleep had not been mated. It is a curious problem for those who take an interest in natural history to solve how it came about that the number of queen-wasps was so abnormally large in the spring of 1886. Was it that the wasps had by some mysterious intuition become aware that something had gone wrong in the 'even tenour' of their existence, and that there was some fear of their numbers being so reduced that they would not be able to perform that portion of work which by Nature's law is allotted to the species; and were they therefore prompted to raise a larger number of queens than usual, so that, haply, the mistake might be rectified, and the 'permanence of the kind' at the end of the season might not be endangered? Evidently some such apprehension must have passed through the communities of Waspdom. The attempt to ward off the impending danger was not successful, and at the end of the season throughout the United Kingdom the cry arose, Where were the wasps? We can point only to two places, Freshford near Bath, and a village in Aberdeenshire, where the wasps were as numerous and as troublesome as usual.

We do not apprehend that the usual destruction of queen-wasps in spring by bee-keepers can be considered as a very great factor in the reduction of the species in the autumn. From time immemorial a destructive warfare has been waged between bee-keepers and wasps with the view of keeping down the number of the latter. One example will suffice. In an old Wiltshire paper we read: 'The Earl of Radnor has for many years paid 1*s.* per nest for wasps' and 2*s.* per nest for hornets'—the queen in each case being invariably produced with the nests. It is a kind of harvest for the men "the wasping season be." Upon referring to the books we find that the sum of 506*l.* 2*s.* has been paid for the destruction of wasps and hornets within the last twelve years, being on an average of 42*l.* 3*s.* 6*d.* per year.' But does this extermination have the effect of preserving the hives from the visits of wasps, or prevent fruit from being damaged by them? The zone thus denuded forms a hunting-ground for all the wasps in the surrounding country, and the destroyers do not fare any better or find their fruit less damaged than that of their neighbours.

There can be no doubt as to the injury inflicted on bees by wasps. The author of *British Bee Farming* says: 'Wasps abound in woody wild districts. I have noticed in one wild woodland in Cheshire that wasps abound in such prodigious

quantities that the peasantry state they cannot from this cause keep bees. One cottager in particular had four large colonies of bees in his garden last summer, strong enough, he thought, to resist any foe; however, every stock was destroyed in the autumn by wasps.' By reference to the past volumes of the *British Bee Journal* several instances will be found of the same destructive results.

The wasps, however, have their part to perform in the economy of Nature. They destroy an infinite number of aphides, flies, caterpillars, spiders, and other annoying insects. The year 1811 was very similar in respect to wasps as last year; it was remarkable for the small number in the autumn, though that of the females in the spring had been very great; and it is said in consequence of this, that flies in many places were so numerous as to be quite a nuisance. Dr. Ormerod mentions instances where the destruction of wasps has resulted in swarms of flies almost as bad as the plague in the days of Moses. And we were not much surprised to hear that the flies last year were most annoying and persistent in their attacks. One gentleman who had thus been troubled found a vent to his feelings by inditing a letter to the *Times* newspaper, indignantly declaring that this plague of insects was due to the selfishness of a few bee-keepers, who, for the sake of obtaining a little more honey, had destroyed all the wasps, and the consequence was that insects were everywhere in the ascendant.

Réaumur has observed that in France the butchers are very glad to have the wasps attend their stalls, for the sake of their services in driving away the flesh-fly. As wasps collect little or no honey, they are continually engaged in predatory excursions, and the number of bees, flies, spiders, &c., that they take to their young is enormous. When their young increase in greater quantities towards the end of the season, the wasps are not particular whence they obtain their supplies; they then cannot resist the temptations of saccharine substances; they rob hives of their honey; they purloin the sugar from grocers' shops; they enter into the secret places where good house-wives keep their preserves, and they suck the juice from the peach, the pear, or other ripe fruit. So strong are sweets temptations for them that they, like poor peccant humanity unequal to the resistance of surrounding enticements, incontinently rush to their destruction, and easily fall victims to their predacious habits. But wasps, it becomes us to say, though given so much to pillaging, cannot be said to be selfish creatures; the *Sic vos non vobis* element is as strong in them as in bees, for their object is to provide food for the young brood of their colonies.

Though wasps may be so few at present, they may soon be in our midst again as numerous as ever. White of Selborne says that in 1781 there were no wasps in his neighbourhood; but in 1783 they were to be found in myriads.

There are many ways by which wasps may be trapped to destruction. Dr. Butler says, 'Set by them Sider, Verjuice, sour drink, or grounds, in a short-necked vial, open, or other glass, covered with a paper that hath a hoal in the middle, and so you shall catch many.' Another preventive is, Keep colonies strong and protect the entrances.

We shall be pleased, as a phase of natural history, if bee-keepers will keep notes as to the prevalence, or otherwise, of wasps in their respective districts.

BEESWAX AND ITS CONVERSION INTO MONEY.

By J. Dennler.

(*Continued from page* 147.)

By the invention of the moveable bar-frame hive and honey slinger the production of wax has sunk to the lowest minimum. The bee-keeper who uses moveable bar-frame hives only allows his bees to build as much wax as he needs comb for brood and honey. The combs designed for the latter are never worn out, and can be used not only ten, twenty, or fifty, but even fifty times fifty years and more, as the damage caused by the slinging is always repaired by the bees. Brood-comb, on the contrary, must from time to time be melted down and replaced by new.

An apiary of twenty to thirty bar-frame hives will only yield very small quantities of wax. It is therefore all the more necessary carefully to collect together all wasted wax in order to melt it down. The most suitable apparatus for this is the sun wax-melter, which consists in a little box of pine-wood with a moveable glass cover. In the middle there is an inclined plate of tin, upon which the waste wax is laid.

If the wax-melter is placed in a very sunny place the wax melts and flows into a little tin trough, which is placed under the tin plate. The refuse is taken away when the flowing down of the wax has ceased.

Whoever through want of a wax-melter wishes to melt down small quantities of wax should put them in a loose box, place a few laths in a kettle, so that the bag shall not touch the bottom, weight it with a stone, pour water over it, and then let the mass boil. The wax melts and rises to the surface of the water, when it is taken off after it has got cold.

In order to free the so-called raw wax, which has been obtained in this manner, from any impurities which it may still contain, it is melted once again in a kettle half-filled with water, stirred well together for a few minutes, and then left for about two hours over a moderate fire, that is to say, so that the mass never boils. When the kettle is taken off the fire, it is skimmed and left until the cake of wax has got stiff. The impurities which have attached themselves to the wax have now partly sunk to the bottom of the kettle and are partly sticking to the under side of the lump of wax, from which they are carefully separated with a knife. Many bee-keepers repeat this melting down a second time, and thus get a better, purer wax.

The Adulteration and Analysis of Wax.

It does not altogether redound to the credit of the present age that it is often called the century of adulteration, and this is not to be wondered at. The impure spirit of adulteration has crept into all branches of human work, so that now the predicate 'pure' can be ascribed to only very few articles of trade. Of late attempts have been made to dispossess the honey of our bees by any possible substitutes, and it is not a hair better with regard to our wax. Tallow, stearin, vegetable wax, earth wax (ozokerit), and other inferior kinds of wax are mixed with bees-wax, and as such are used in commerce.

The adulterations of wax, writes Dr. A. von Planta,

are so difficult to detect, that it is scarcely practicable for those who are not experts. Pure bees-wax melts at 63°·5 C. I have proved the melting point of twenty-five such pure specimens of bees-wax obtained from different countries, and it entirely agreed with that stated above. But since then adulteration has been attempted with earth-wax, paraffine, and animal fats, the melting point does not provide enough security. Otherwise this method will provide a good criterion for those who are not experts.

There remains, therefore, no other way but to go to the chemist with his analysis of wax, who will undertake the fixation of cerotinic acid and the non-fugitive fatty acids, and from that will provide a much safer criterion with regard to adulteration.

The following domestic analysis has, however, often afforded good service:—(*a.*) When wax is chewed there should be no unpleasant taste, and it should not stick to the teeth. If wax is adulterated with other ingredients the taste can be usually recognised. It sticks fast to the teeth, so that the existence of rosin can be assumed. (*b.*) To separate pure beeswax from adulterated is also determined by first bumping quickly on a hot iron plate a small bit of beeswax which is known to be pure. The smell which is given off is noticed. Then a piece of wax is burnt which is to be examined. If it contains ceresine there is given off a disagreeable, fatty, white shoke, which differs the more from the smell of wax the more ceresine there is mixed with the wax. This is a simple way of proving the purity of the bought artificial combs.

(*To be continued.*)

HOW MAY I RE-QUEEN MY STOCKS?

This is a chapter for small bee-keepers. The above question was put to me during the past week by the owner of seven stocks. He has kept bees for three years only, and as he has managed to prevent swarming, except in one instance last year, some of his queens are old, and consequently he has three colonies not up to the level of the others, which he rightly attributes to his queens being past their prime, and hence his appeal to me for advice, which I gave him, and now repeat in these columns for the benefit of any who may be in a similar position.

I need scarcely go over the ground of showing the necessity of having vigorous queens at the heads of all colonies if we wish to make bee-keeping profitable. Some queens are vigorous even at the age of four years, but by far the larger majority are not so. Others are almost worthless at the outset, and as the only real 'proof of the pudding is in the eating,' having proved such and found them worthless, the wisest precaution is to be careful not to breed from such.

As to superseding, the bees will do it, but they will often lose a lot of time over the operation in the very height of the honey season, whereas if we do it for them we can choose our own time and that when honey is not so plentiful. But I will assume that you take all this as granted and proceed to give you the advice I gave my neighbour.

He wished to re-queen three colonies, so I advised him to proceed thus:—Remove one of the old queens and destroy her; now take the young queen from the stock that swarmed last year, which is his strongest and best, and introduce her to the stock from which the old queen was taken and destroyed. You have thus given one good queen in the place of a bad one, but you still require three queens. Five days after this prepare two empty hives and place them on stands somewhere apart from the rest of your stocks, open the strong stock that is queenless, and you will find several queen-cells, scattered doubtless on two or more frames. If this is so take one frame containing one or more of these queen-cells with all its adhering bees and place it in one of the empty hives; now give two more frames, without queen-cells if possible, but with its adhering bees, and close and wrap them up snug and warm. Proceed to treat the second empty hive the same way. You will then have divided your strong stock of, say, ten frames, thus:—No. 1, three frames; No. 2, three ditto; and the original hive has four left. If they should not each have an equal number of bees you may take a frame from the strongest lot and shake as many of the bees from it on to a sloping board in front of the weakest lot and allow them to run in and thus equalise them. You must be careful to give each lot one or more queen-cells and its fair portion of young brood. Should all the queen-cells be on one or at most two of the frames you must cut some of them out and insert them into a frame that contains none, as failure must result unless each lot has at least one queen-cell—it is so important that I repeat it to emphasise it. Care must be taken not to crush or violently jar the queen-cells during the operation. I point out these matters that you may be guarded, but the operation is not so difficult as it reads if you will only go coolly along and neither bustle nor fume nor flurry.

Fourteen days after you may look and see if they are hatched out; let it be done in the evening, because if done at midday it is possible the young queens may be out for a fly while you are examining their home, and you may prevent their safe return. If they are hatched out and there is no young brood in any of the nuclei hives it will be advisable to give a frame from some other hive, and thus prevent all the bees from boiling out with the young queen on her wedding trip. Ten or fourteen days after you may hope to find eggs and brood, and then, of course, you know success is assured to you.

During this time two of the old queens have been at the head of their colonies, your next operation is to remove them and introduce the young ones into their places; you can unite the bees and combs back again to their original hive or you can give some of them with the young queens when you introduce them into their new homes; for myself, I prefer to give the queens singly. If honey has been abundant the combs in the nuclei will have been filled with stores as fast as the brood has hatched out; if this is so it is advisable to extract at least the lower part of the combs, which should be the brood-nest, thus giving the young queens full room to develop their egg-laying energies.

When is the best time to commence queen-raising? Now; before the drones are killed off, and while the colonies are vigorous and have not naturally lost the swarming impulse. How would you introduce the young queens? By Mr. Simmins' method, if done singly, but by drawing the nucleus step by step alongside the colony and feeding both for one night with scented syrup, and lifting the frames, bees, and all complete, out of the nucleus and placing them alternately with the other frames in the original stocks, if I preferred uniting. I hope none will run the risk of losing next year's harvest on account of having doubtful queens at the head of colonies because of the little trouble involved.

There is still another course which is simple; it is BUY, but it must be from those that have queens to sell, not from—AMATEUR EXPERT.

FRANCE.

In commenting upon the outlook of the French wax market, the *Apiculteur* of Paris expressed an opinion in one of its recent numbers that the footing which France had set in Madagascar with the supposed pretext of finding new outlets for French goods, was not likely to produce the desired effect so far as the home apiculturists are concerned; for it would appear that at Marseilles, which is one of the greatest wax markets of Europe, prices have already been forced down in consequence of

supplies coming in from Madagascar, now offered at from 2.20 francs to 2.30 francs per kilo. In view, therefore, of this new intruder, the *Apiculteur* urges home bee-keepers to agitate for an import duty to be put upon Madagascar, as well as upon all foreign wax, except, of course, where existing treaties of commerce render such a step impossible. The *Apiculteur* promises to return to this subject in a future number. It remains, of course, to be seen whether wax-manufacturers, who are large buyers of this article, and consumers generally, will side with bee-keepers in their endeavours to raise the price of this important commodity at their expense.

IRISH BEE-KEEPERS' ASSOCIATION.

A meeting of the Committee was held on the 5th inst. Present: Mr. Read, in the chair; Dr. O'Farrell, Dr. Traill, Dr. Knight, Dr. Allen, Messrs. Sproule, Gillies, and the Hon. Secretary. A Sub-Committee had previously been appointed to draw up a specification of a hive to be recommended for general adoption by the Association with instructions that it should be capable of being made cheaply.

Mr. Gillies, on the part of the Sub-Committee, read the following report:—

Cheap Standard Hive.—Resolved, That the length of top-bar shall be 16 in., out to out, width $\frac{7}{8}$ in., thickness $\frac{3}{8}$ in., sides $\frac{1}{4} \times \frac{7}{8}$ in., bottom $\frac{1}{8} \times \frac{7}{8}$ in., outside measurement of frame $8\frac{1}{2} \times 14$ in. The top-bar of the frame to be what is known as open-ended with screw distance-keepers 1 inch in length and $\frac{5}{16}$ in. across the eye outside measurements; the eye screws to be inserted immediately over side-bars. Hive to be 22 in. long, $14\frac{1}{2}$ wide, and $9\frac{1}{8}$ deep from top of frame to floor-board inside. Walls, if single, to be of $\frac{3}{4}$ in. wood, with a strip of wood at the top to cover the ends of the frames, and $10\frac{1}{2}$ in. deep; if double, these details may be varied where necessary. The floor to be of 1 in. timber planed on both sides, nailed to rabbet in the sides, and, if joined, to be tongued and grooved.'

A hive made by Mr. Sproule according to the above specification was exhibited. It will be observed that the dimensions given for the frame are the same as those of the British Association's frame, except as regards the length of the top-bar. Some objection was made to this alteration, but it was pointed out that a considerable saving in the expense of making the hive was effected by it.

It was also suggested that the best method of keeping the proper distance between the frames should be left an open question; but the Committee decided in favour of the distance-keepers recommended in the report. These, which were introduced by Mr. Gillies some years ago, possess the very important advantage that, according as they are screwed a longer or shorter way into the top-bar, the distance between the frames is varied at the pleasure of the bee-keeper. In the end, after much discussion, the report was adopted without alteration.

THE USE OF HONEY IN CURING ERYSIPELAS.—A neighbour lady tells me that she completely cured a case of this disease with honey, after the doctors had given her child up and said it could not possibly get well. The way she applied the honey was by saturating a sheet with honey, and wrapping the patient in it; but it was a very bad case, and the disease had spread all over the child's body. I suppose all that would be necessary would be to cover with a cloth the part affected, saturating it with honey.—*Gleanings in Bee Culture.*

Mr. W. Couse, Secretary of the Ontario Bee-keepers' Association, desires us to convey his thanks to Mr. T. B. Blow, of Welwyn, for the donation to the Library of the Association, of his work *Among the Queen Raisers of North Italy and Carniola*, and to 'Amateur Expert' for forwarding the same.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts* (see 2nd page of Advertisements).

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

OUR HONEY IMPORTS.

The value of honey imported into the United Kingdom during the month of June, 1887, amounted to 1737*l.* [From a return furnished by the Statistical Department H. M. Customs to E. H. Bellairs, Wingfield, Christchurch.]

THE NEW RACES, AND THE BEST MEANS OF INTER-BREEDING AND SECURING FERTILISATION.

[1146.] We have now to consider the methods most serviceable for securing the fertilisation of our queens. We can but make every preparation, and the rest must be left at the mercy of the weather. From my own experience I know only too well how sadly disappointing it is to have dull or windy weather just when young queens might be flying. But bee-keepers are ever hopeful, and sooner or later the good time generally arrives.

A plan often recommended is that known as the 'Köhler' process. The queens are confined in nuclei placed in a dark, cool room, as also the hive containing drones. About 4 p.m. each day after the queens are five days old, these are stood out facing the afternoon sun, in positions to be numbered, or otherwise marked, to ensure that each occupies the same position daily until the queens are mated. Where a few only are raised this does very well, if the evenings happen to be fine, but when many are wanted, it is quite out of the question.

Though mating by selection can be carried out in spring occasionally, I have found autumn the most favourable time, as the weather, as a rule, is more settled. By making a colony populous with drones queenless early in August, the annual slaughter will not occur; feed heavily, see that they raise no young queen, and you are safe.

Another method that will be generally successful is as follows. Place all queen nuclei and drone hives of one kind facing the south; another variety stand with all entrances facing the west, with a shade board on the south side of each of the latter. The drones and queens of each respective position will then be more likely to fly at the same time. Those facing south at the usual hours, and the others about the time they have ceased.

It has been stated that drones take up favourable positions where they congregate in large numbers awaiting the arrival of the young queens. I have seen the same thing, and am aware of two favourite resorts near here where the roar of hundreds of drones fills the air, and many of them are to be seen sweeping by. Nevertheless, I know as a fact, that where many drones fly from near the starting-point of the queen, she is almost certain to mate with such nearer neighbours if only in sufficient numbers. It appears strange that while many queens may fail to get mated while the weather happens to be not quite favourable, some few do meet a drone, but these, upon examination, will almost always prove to be fine, extra-developed queens. The hint should

therefore be taken, and one should strive to breed only the finest.

But to return. Another plan is to restrain all undesirable drones by excluder zinc. Great care must be taken that hives containing confined drones are opened only at early morning and evening, as when once at liberty any hive will accept them during the season; in fact, a large number of those which start on flight from a certain hive, never return to the same, but make their home with any neighbouring stock, until flying again another change is made. Without due care, therefore, little good will be done by using excluders.

Fertilisation in confinement! What a desirable accomplishment that would be if only it could be reduced to a practical certainty. For many years I have experimented in this direction, as also with artificial fertilisation, but until this season in vain; valuable points have been gained, but the end is not yet. Details of the many trials and experiments would fill a volume in themselves, but would be of little use to the reader. Should present more extensive experiments reduce the matter to practice, then the same shall be explained at some future date.—S. Simmins.

JULY 4, 1887.

[1147.] 8 a.m.—Well, yesterday was a broiler. I wonder what to-day will be like. Glass falling the least bit. Other things just the same as yesterday. Good morning, my dear bees! Are you all happy and going to be good to-day? You know you have given me but little rest lately with your perpetual threats of swarming; but you have all got plenty of room now and plenty of work to do; so you need not go dawdling and wasting your time like young lovers. The sun is at your back till noon, and the whole dozen of you seem happy and contented. Now, please be good, and do not swarm.

12.0.—Thermometer in shade, 82°. Alighting-boards are black already instead of grey. This is getting serious, and the sun will be round in front of you in half an hour, and burn savagely till six. Can I not help you in any way? Let me see—my wife is away—why not the best pair of sheets? Come, John, and help me to arrange them. Yes, you must put on your veil, for the heat makes them very peppery, and each hive has two sentinels; one has orders to fly straight at your nose, and the other to buzz about your head, asking where you will have it, generally ending by himself selecting the nape of your neck. Now, quick is the word. I have run forward the roof of each hive about a foot. We will lay the sheets along the tops, weighting them with stones, so as to hang down in front and keep the alighting boards in shade. There, my dears, you look now like the old-fashioned bathing-machines I remember in my younger days, with big awnings in front, under which that horrid ogress used to duck me. Now do not fly about wildly as if you had lost your way; your homes are all safe there under the awning, and have all got their numbers painted very large upon them; so you cannot mistake your own rooms.

2 p.m.—83°. I say, this is really too bad. How, when all the others are as good as gold, what in the world do you mean, No. 5, in pretending to talk about swarming? You know very well that you are only twenty-four days old, and you have got a nice super to fill, and plenty of sections also in the rear; and there you are hanging out and festooning just as if you were a grown-up stock. What! your Queen says 'she really must insist upon new nurseries with proper accommodation for her children, or else . . . . ?' Well, be good for to-day, and I will see if I can help you in the evening.

3 p.m.—85°. No. 5 really means business. What is to be done? Happy thought, the hydropult! There is still some water in the pond, though the pump in the yard is dry. Now, is not that nice? Ah! I thought ladies would not risk getting their bonnets wetted, and that you would go quietly to your rooms for a bit. But has it not cooled the air all along the line, and made you look more like bathing-machines than ever?

4.30.—No, I see your majesty of No. 5 will not be put off. I will have all my staff ready at sunset, if you will only keep good till then. A little more hydropult? By all means. Glass fallen nearly a tenth. I think it will rain to-night.

8.30.—Decidedly the air is cooller. Now, ladies of No. 5, excuse a little 'baccy smoke at the front door and on the clusters about it. My screwdriver has prised up your super—do not be alarmed, it is but half full, and you shall have it back again in a few minutes. Then this cloth, damped with nice solution of carbolic, will soothe you while my masons are at work; they have just a smack of apifuge about them. What do I see? Twelve frames all beautifully finished and two section frames nearly full in the rear, besides the super half filled—well, you do deserve praise for good use of your time since you were hived on June 10. Excuse my moving your bedrooms a little; I will do it as gently as I can, beginning from the rear. Now I have slid them all back, leaving a space between the third and fourth, which will just take these three pretty new frames, with their tempting foundation-comb. You can build some splendid nurseries for her majesty in them. I do not think you can want this beautiful sheet of honey; I will give you two more section frames instead. Now you have got your super back, and are safe in bed again, with sheet and blanket comfortably tucked in. Good night, dears; you have been very good, and when I have 'extracted' the comb I have taken, you shall have it close to your house to lick clean.

July 5, 2 a.m.—Hurrah! it is raining.—C. C. James, *Papworth, St. Agnes.*

YORKSHIRE NOTES.

[1148.] Prevention of swarming being all the fashion now, and as I still work on the swarming principle, perhaps some of your correspondents will tell me if my present prospects are as good as they would have been without the swarming.

I wintered thirteen stocks—ten in frame-hives and three skeps. I have sold five swarms and have eight additional swarms. Up to this time I have taken 330 lbs. of extracted honey from nine stocks, and have the eight swarms and one stock, with about 350 lbs. of sections on them, mostly finished off. I see in the *British Bee Journal* of June 30 the Hon. Sec. of the Lowestoft Bee-keepers' Association says that not one swarm in twenty will give a surplus the first year. This is quite contrary to my experience. The first frame-hive I ever possessed, which is ten years ago, filled me ten frames with guides only, and gave me 32 lbs. in sections, and the swarm was only hived on the 27th June and was not taken to the moors. As I stated in a letter to the *British Bee Journal* this spring, on the swarming plan you always get your old queens superseded, and in doubling in the autumn you get the late brood from two hives, besides having a lot of spare combs to store away for the following year. However, if all is well next year I shall try a hive or two on the non-swarming principle. I forgot to say that, in addition to the 350 lbs. in sections on the swarms, I have taken 33 lbs. in sections.

In answer to Mr. Simmins about queen-excluder zinc, I may say that for six or seven years I have crowded my bees on seven frames (with zinc above) to get them into supers, and have never had a queen go up into the supers, although the swarms would swarm again, for want of breeding room I expect, which causes me always to add a few combs now after they are well started in the supers. I have always got the zinc from Abbotts', but expect it is the same as sold by all the trade.

In 'Useful Hints' this week I see it stated, 'Manipulations should never be undertaken in the heat of the day; the bees are very savage,' &c. &c. [This was written in one of the hottest days of the present hot season.] And in Notices to Inquirers, in the same number, you say, 'The bees are best-tempered when they are busy bringing in honey; this would be the best time for manipulation.' Is not this rather puzzling for beginners?

My bees are always savage for some reason or other, and I could not walk amongst them without a veil and gloves on. I have never bothered them with manipulations, but I fancy that by extracting every year from the same strain of bees they breed more savage every year. I always smile to myself when I see that any one has taken honey, &c., without any protection, and then writes off to the *Journal* congratulating themselves on their narrow escapes. I always think what a 'funk' they must have been in all the time.

I should much like to see any one come among my bees without protection: I will give them Grimshaw's Apifuge to boot if they will do it. [We recommend our correspondent himself to test its powers, and report.] It would be a deciding test as to its efficacy, but I don't think they (the bees) would ever have the chance to smell it, as they always seem to me to fly tail first.

I quite agree with 'Looker-on' as to Bee Associations, and have always held the same opinions. Unless the Associations can find you a market for your honey, what earthly good are they? They increase the demand for hives and appliances and benefit the manufacturers, but certainly not the honey producers; indeed, they do actual harm to the latter by persuading so many to keep bees that the working man is out of the race altogether from the low prices and difficulty of getting a market of any sort, and yet the Associations were started with the object of assisting the working classes. I hope I shan't bring too great a storm on my head for my heresy, but I am open to conversion.—Arthur J. H. Wood, *Bellwood, Ripon, July 8th.*

WATER FOR BEES.

[1149.] Reading the method of giving artificial supply of water to bees, in last *Journal* (page 280), I will, with your permission, give you a few details of how I constructed an artificial supply for my bees at the beginning of this year, and which not only gives them plenty of water, but looks ornamental into the bargain, and now, on July 2nd, at 7 p.m., is literally covered by the little water-carriers. In my garden grows a very old and large hazel bush, in middle of which I firmly fixed a barrel and which is now quite hidden from sight by the leaves. This barrel is about a yard from the ground, which here is a little higher than where I give the supply. I have the top end taken out and made into a lid to keep out dirt; the tap hole is in the bottom, and into this I secured one end of a piece of half-inch piping, which piping I run underground to the required spot, where I turn the end straight up about a yard. In this end of pipe I fastened a straight tap, the uppermost end of which I confined with a wooden plug, having a small hole through it into which I inserted a very fine metal tube, so that my stream of water should be as fine as possible.

I then got some mossy stones and made a mound of them some four feet wide at bottom, and finished it off in haycock fashion; at the top I placed a flat, mossy stone through which I drilled a hole into which the wooden plug loosely fitted. The tap is just underneath the flat stone at top, a small space being left for my hand to set on the supply or take off, a small, mossy stone covering the opening when my 'bee-fountain' is at work.

Amongst the stones I filled in soil and planted snowdrops, bluebells, small ferns, thyme, arabis, &c., which not only look well, but afford a safe footing for the bees as they alight, for the sprays of water which fall on them from the fountain, which rises about two feet above the mound of mossy stones, and is sent hither and thither by every breath of wind.

Many who have known my small apiary for some time, and have come and seen this for the first time, ask, 'Where does the water come from?' In all honesty I am obliged to answer 'From the pump.' But this does not satisfy them, and I then explain the very simple means of conveying the supply, which altogether, giving my labour in, cost me something like five shillings.—Elihu Clowes, *Blackbrook.*

MIDDLESEX B. K. A. AND THE WOOD GREEN HORTICULTURAL SOCIETY.

[1150.] The Wood Green and District Horticultural Society held their Show yesterday and to-day in the grounds of R. D. M. Littler, Esq., Palmer's Green. The Middlesex Bee-keepers' Association were to have held an exhibit for the purpose of showing the great improvement made in the management of bees, and an expert was to attend and give short lessons, &c., in the bee-tent, as per announcement on placards and programmes. Myself and many visitors were much annoyed at their being no exhibit whatever, except a little honey shown in the flower-tent by a member of the Society.

Now, sir, I wish to enter my protest against this bad behaviour, whomever it may concern. The officials on the ground were very courteous and extremely sorry—to those who made inquiries—that the expert and the bee-tent had not arrived, although some telegrams had been sent by them without receiving a reply. No mention of this disappointment was made at the distribution of prizes, and the show passed over as if no bee exhibit had been advertised. As a visitor who went specially to see the bee-tent, I was much annoyed. This kind of treatment will tend to do an incalculable amount of damage to the Wood Green Horticultural Society.—A Visitor, *July 9.*

CAUGHT IN THE ACT.

'The sad-eyed justice with its surly hum,
Delivering o'er to executors pale
The lazy yawning drone.'

[1151.] These three last lines of the Home Rule practices in the commonwealth of bees always struck me as being hard upon us 'the drones.' However being educated I've learnt to deal with facts as I find them; therefore availed myself of my knowledge of hive laws and early last week took the liberty of lodging outside our strictly governed and well-stored butt; and as through the glass I was contemplating the symmetrical cells of our well-filled and sealed 'super' was surprised to see one of them occupied by a bee, who was again occupied in filling himself with the public property. On looking closely to see where the burglar had entered I observed at the mouth of the cell four other bees just finishing the business of sealing it up—in fact, the thief caught red-handed had been pushed in and sealed up *alive*, 'like maudlin Clarence in a malmsey butt,'—a prompt, albeit severe, yet, as I think, more richly deserved reward for evil doing than the death yearly meted out to us for doing what nature framed us to do. Well, sir, I continued to watch, and in the evening the thief was *dead*—sealed up and left on the scene of his wickedness as a warning and caution to all bees and humans who would sacrifice country to self and the commonwealth to personal aggrandisement. For three days the traitor's body was left to public gaze, then with that regard to sanitary measures in which we are so far ahead of poor humanity, it was unsealed, exhumed, and buried without the camp; and on the next day—again an example of our

unrivalled economy—the cell was refilled with the best lime honey, alas! poor simpletons, not for the workers, *Sic vos non vobis;* but, there, they'll kill me, so I needn't cry for them; they go on as usual, only since the event I relate no more cells have been broken into and a wholesome lesson has been taught that those who are to shuffle on may well lay to heart, as coming from a doomed yet wide-awake, though maybe—A LAZY YAWNING DRONE, *July 8th.*

P.S.—I think I saw enough of the deceased to state that he was not a foreign invader, but a traitor in the camp. From which are we most in danger?

EXTRACT FROM A MANUSCRIPT GAME LIST, FISH LIST, &c.

[1152.] '*Glis or Glys, Switzerland, January 28th,* 1821.—On the side of a mountain, exposed to the south, many insects came forth and bees swarmed. This was bad management on the part of the farmer, who should have chosen a northern aspect for his hives. The bees, revived by the premature heat, were exposed to considerable inconvenience from the frost a night.' (No doubt.—J. L. S.)

The writer of the above was a well-known sportsman, and in his manuscript book, which I possess, he inserted feathers from various birds, those feathers are not only as fresh in colour as at first, but have printed on the opposite pages a 'photograph' (a photograph without light!) of themselves—especially teal, heron, heathcock, plover, &c., exquisitely defined in brown.—J. LAWSON SISSON.

A LOST AND FOUND QUEEN.

[1153.] I had a swarm of bees out of a bar-framed hive on the 16th June, and removed the queen-cells on the 19th, or rather, thought I did, but being only a novice, must have let an additional one escape me, as a cast left the hive on the morning of the 28th, which was at once hived in a skep. About half-an-hour after hiving, it left the skep and returned to the hive. The next morning the cast left the hive again, and was again hived in the skep and protected most carefully from the great heat, and in the cool of the evening I searched for the queen, but without success, so left the bees in the skep, and, having to leave home early the next morning, gave my gardener orders to watch the bees most closely and note their proceedings. Early in the day they all left the skep, and went back to the parent hive, when they clustered on the top and upper parts of sides and front. The gardener, thinking something was strange in their conduct, opened the hive and found the queen on the inside of the roof. As soon as he had secured her the bees all quietly returned to the hive, and resumed work, and have almost completed a crate of sections since. I suppose when the swarm was leaving the hive, the queen must have escaped through some opening in the bars, and did not accompany the bees. But what appears to me strange is whether she did not accompany them on the first occasion, and did they leave the hive on the next day without having had the queen with them from the previous morning?—E. A. GIBBON, *Rosslare, co. Wexford, Ireland.*

FLOWERS AND HONEY.

[1154.] I thought it might be interesting to some of your numerous readers to hear a word or two from me again now that I think I have discharged all my orders for cuttings of *Nepeta mussini,* borage, and *Limnanthes* seed. Still, I have got some left. I have received many acknowledgments from those who have received some of the above. Some say they arrived in good condition, while others say that they were so withered that they are afraid they will not strike. No doubt it would have been better if all had been sent per parcels post and packed in damp moss, more particularly for long journeys. I thought such a thing might happen that I have omitted sending to some who have applied, or any other mistake which may have occurred upon my part. If so I beg them to send me a post-card and they shall be attended to immediately, or if any have failed in striking they can have a fresh supply, but I would advise them to have them sent as above. I have decided to strike a large quantity of *Nepeta mussini,* and will offer them to our bee-keeping friends later on. Some have inquired what distance apart the plants should be. I have advised 3 feet 6 inches apart each way, thinking that to be an average distance for all kinds of soil, but if the soil is rich and strong 4 feet apart would be better. It is a very pleasing sight to see the large masses of bloom, which look so very handsome—more so when a bee-keeper approaches, and sees the multitude of bees at work upon it from early morning until late at night.

When I get away from home I notice large numbers of bees upon blackberry bloom and other wild flowers, but it is very seldom I see any on them near my home, hence the quantity to be found on the borage and *Nepeta mussini.* No doubt some would like to know how I get on for honey. Well, Mr. Editor, with your permission I will tell them later on, but it must not be understood that I possess a very large number of stocks, and, again, I have lost some very valuable time this year through not being able to attend to the bees at the proper time. Still, I have no reason to complain. For example, being in want of a little comb honey on Saturday, the 9th inst., I went to one of my best stocks to see if a little could be got. There were three crates of sections upon the same, two containing twenty-four each and one twenty-one, all 4½ by 4½ by 2, the top one contained twenty-one beautifully filled and sealed, the second twenty-four equal to the first, and the third had about one dozen completed and the remainder in a more or less advanced stage of completion. This crate I did not disturb; but being a large hive I could examine four frames at the end of the section crate without disturbing the crate. The outside comb had nearly two inches of room; this was completely crammed with beautifully sealed honey and fastened to the hive on the outside, apparently for support. This comb weighed 7 lbs. gross weight. This I took away. The second had sealed honey about two-thirds of the way down, and the third and fourth about half-way down; the remainder parts of the three combs being completely crammed with beautiful-looking and sealed brood. The hive holds fourteen frames, so there were ten which I could not examine without disturbing the last set of sections, which I did not do. I gave the bees, in exchange for the forty-five sections and the heavy frame, one frame of foundation placed between two frames containing brood. It should be distinctly understood and well borne in mind that all plants grown for the production of honey should have a good airy and sunny position, or the honey which they produce will be of an inferior quality and very much less in quantity.—C. H. W., *Aylesford, Maidstone.*

DIVIDING FOR INCREASE.

[1155.] To do this successfully, queens should be reared and ready to furnish each new swarm with a fertile queen at the time of forming such colonies; the time saved in breeding is very important.

To Rear the Queens.—Form a nucleus from the strongest colonies, select a comb containing capped brood and plenty of eggs and young larvæ; look it over carefully lest the old queen is on it; cut one-third or one-half the lower part out of this comb, which gives the bees room to build cells on the lower edge—a convenient place for the operator to remove them, when forming

other nuclei. Place this, with its adhering bees, in an empty hive, and next to it another comb containing honey and bee-bread; this affords food and protection. Give the nucleus colony at least a quart of bees, and put it on a new stand, and confine the bees there until the next morning. Then contract the entrance so that but one or two bees can pass out at the same time. They will usually build six or ten or more queen-cells on the eighth or ninth day after the nucleus was formed. Then open the hive, and, with a very thin-bladed knife, cut out all the queen-cells but one, and use them immediately in forming other nuclei, by attaching each to a frame of comb and bees taken from an old colony as before described, and placed in an empty hive.

In transferring queen-cells care must be taken not to expose them to cold or heat, or to denting the cell. Leave about an inch square of comb at the base of the cell, and insert it among the young brood. Never leave a nucleus colony destitute of young brood after the young queen hatches, as the bees are very apt to abandon the hive when the young queen goes out to meet the drone. Now watch and care for the young queens until they become fertile.

When and how to Increase.—When your colonies are strong and you are ready to form new ones, first cage the young queen, then from a number of colonies take sufficient frames and bees to form a good colony of bees; close up the hive of the new colony until the next morning, then open it, and on the second or third evening liberate the queen. Continue in this manner until you have such increase as you desire, but in all the operations use plenty of smoke.

Again the forwardness of the season must be your guide as to the time to form colonies. You can rear queens early and keep them in readiness; a colony of bees without a fertile queen build mostly drone-comb. The bee-keeper that rears queens for new colonies must have the hives for the season ready early. Success is not in the number of colonies on hand; it is not bees we want, it is honey. It is not a great number of workers in one field that will secure this, but a large force in each hive.

The apiary should have the cheerful ray of the morning sun. A very good way to check robbing is to place a bunch of grass or wet hay over the entrance to the hive. The bees will find the way to their own hives, but robbers will be caught by the sentinels while passing through the grass. The moth is a scavenger which comes to clean up the wreck of the negligent bee-keeper.—S. D. Barber (*Semi-tropic California*).

Reviews.

Praktisk lommerbog i tidsmæssig biskjötsel. By Ivar S. Young. (Christiana, 1887.)—This is a handy little volume on bee-keeping much in the style of *Modern Bee-keeping* published by the British Bee-keepers' Association, and from which some of the illustrations are taken. The well-known frontispiece entitled 'Hiving under Difficulties' has been adapted to the super skep in use in Norway. This book is nicely compiled, the illustrations neatly executed, and it cannot fail to be useful to the Norwegian bee-keeper. Mr. Young has added at the end a list of honey-plants with their times of flowering and values. We wish this work every success, and hope it may be the means of spreading a knowledge of bee-keeping amongst the agricultural classes.

Förer i biavl efter Thos. Wm. Cowan, translated by Hans Ersler, editor Tidskrift for biavl. (Kjobenhavn, 1887.)—This is a translation of our *Guide-book* into the Danish language. In order to make it of additional service to the Danish bee-keeper, the descriptions of several of the best frame-hives in use in the country have been introduced, making it a complete guide-book for the practical management of bees in moveable comb hives. The same illustrations have been used as in the last English edition, and the printing is well done.

Nouvelle flore du Nord de la France, et de la Belgique pour la determination facile des plantes sans mots technique avec 2282 figures par Gaston Bonnier et Georges de Layens. (Paris, 1887.)—This is a new work just received. It is on the same principle as the *Nouvelle flore* we reviewed some time ago (p. 132), and what we said then applies equally to this book. There is one advantage the English student would have in perusing the present work—namely, that it approaches more nearly to the British flora as it contains all plants found along the sea-coasts of Belgium and France, which are mostly also common to our shores. The figures are a great assistance in determining floras with the greatest ease, and we only wish it could be translated into the English language for the benefit of those who do not understand French.

The Production of Comb Honey, as practised and advised by W. F. Hutchinson. Those who want to know all about how to produce honey in sections should get this pamphlet. Mr. Hutchinson is a well-known American bee-keeper, and he writes from practical experience of the subject. The pamphlet contains chapters on supers, separators, sections, tiering up, driving swarms on empty combs, foundation, and on empty frames. Mr. Hutchinson hives his swarms upon empty frames, although the non-use of foundation is only one part of the 'system.' The reasons are fully explained in the pamphlet, which we recommend to our readers.

FOR BOYS AND GIRLS.

Bees for Boys.

The bees *I* like best are Humble Bees. I have kept them now for three successive years and am improving upon their habits. Last year it was *Bombus lapidarius*, but this year it is *Bombus terrestris*. You have given a sketch of my hive before in the *Journal*, though I have made alterations in it; for instance, I took part of a section, cut a hole in it, and made it as a porch to keep out the light. Then I put a dividing board, with a hole in it, and between that and the porch was the 'feeding-place.'

Situation of Nest.—While one of my playmates was finding the nests of birds in the woods he turned up a sod, and saw a lot of pieces of grass, hay, &c., and, being on the look-out, as I had told him, for a humble bee's nest, he gave it a few taps, to see if there were bees inside. But he heard no noise, and when I arrived I looked into it more closely and found it was really a nest.

It was behind a holly-bush, under a sod, and it seems as though the queen built there to be out of the sun's rays, so, according to nature, I placed the hive out of the sun's rays when I got home. When I saw the nest you may be sure I was not long in leaving bird-nesting, running off home for the 'Clock-case' hive.

Taking the Nest.—I laid the hive down near the nest, and began pulling the outside straws away and packing them in the clock-case, the bees buzzing all the while. At one time out came a very large bee, fluttered its wings as if in anger at being disturbed, and then went back, but never took to flight. I guessed this was the queen, because all the other bees were small ones, and you may judge I kept still while she was out, lest I frightened her and she flew away. When she had got nicely settled I commenced operations again, and lifted out the whole nest, wrapped round with hay and fastened together with wax, which, by the way, is not like the honey-bee's wax, it is nearly black; but, as soon as I was sure of the queen, bees, and combs, I packed it temporarily and hastened home. I will tell you more about them shortly.

I should like my *young* friends to note that when I mention bird-nesting, it is not to rob them.—DARCY GRIMSHAW, *Horsforth, near Leeds, June 25th.*

ON BEES.

[The following has been forwarded to us as a first attempt at poetry by a young beginner in bee-keeping.]

At early morn, if clear and bright,
The busy bee will take her flight
To gather food from fields around,
Where sweetest nectar doth abound.

To clover bloom she hies in haste,
Nor does she useful moments waste,
But flits about from flower to flower
With merry hum each golden hour.

Well laden with the treasured sweet,
For occupants of hive to eat,
She wings her way on homeward track,
Nor thinks her fastest speed too slack.

With haste she journeys on her path,
O'er tree, and hedge, and nearest rath,
And flying straight for open door
Arrives thereat with many more.

Discharging now her honey sack
With eager haste she hurries back,
Nor stops to work each sunny hour
Till forced to fly from passing shower.

Her sister worker with her feet
Collects the bread for brood to eat;
And toiling home with laden spoil
Arrives exhausted with her toil.

Within the hive is ever rife
The constant din of active life,
Where none employment ever lacks
From queen to bees secreting wax.

The mother-bee her calling plies
To crowd the hive with busy lives;
Within the cells with graceful bend
She drops the tiny eggs on end.

Her subjects which remain at home
Engage with will at building comb,
While some, with half-digested food,
Proceed forthwith to feed the brood.

Some more are using nature's glue,
Collected by a merry few
From poplar buds, and other such
Buds from which it oozes much.

The 'lazy drones' (?)—how much they eat
Of luscious honey pure and sweet—
Keep up the heat, 'tis understood,
Of hive, and help to hatch the brood.

But their chief good and greatest need
Is surely this in very deed—
To fertilise the virgin queen
In aerial regions seldom seen.

At length, the hive being overstocked,
And future work being well-nigh blocked,
Some bees with queen proceed to roam
In search of such another home.

J. SMYTH, *Drumwhan, July 5th.*

Echoes from the Hives.

'*Honey Cott,*' *Weston, Leamington, July 4th.*—Glorious time for bees and bee-keepers, both are kept well awake by plenty of hard work, the roar of the bees continually is something to make one glad. An old-fashioned bee-keeper, who has five stocks in skeps and only had one swarm and would not feed his bees because it was end of May and beginning of June, and nearly let one lot die, sees the folly of it, but I dare say he will hold to his old ways still, as he has been shown and told the right way many times before.—JOHN WALTON.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

J. J. W. C.—The bees forwarded are but a slight remove from pure blacks.

W. H. A.—*Excluder-Zinc.*—Your experience in the use of excluder-zinc is similar to our own. It is, however, approved and much used in America. Much depends on the manner of application. The adapting-board should allow full three-eighths of an inch as a bee-space on the *under* side of the zinc. When this is allowed bees will often work quite freely through the zinc into the supers above. Probably your bees would have swarmed zinc or no zinc.

LANARKSHIRE.—*Hives, &c.*—The least complicated hive substantially built of well-seasoned wood is the best. A plain hive, taking twelve standard frames, capable of doubling and storifying, will suit you best. For such a hive you will be charged about 15*s*. We cannot recommend dealers. W. B. C. are the initials of the inventor of the metal ends, which are simply distance guides for frames. Wired foundation has thin wires embedded in the wax, to strengthen the combs and prevent falling from heat, and from breaking in the extractors.

S. M.—*Moving to Heather.*—If the weather prove fine during the heather bloom it will pay well to remove your bees to the centre of their work. A friend who kept bees within two miles of heather repeatedly noticed that his bees did not visit it at all, even in fine weather; but when he moved them to the heather, they rewarded him with a plentiful harvest of the finest honey.

J. C. I.—*Honey.*—We think the flavour of the honey forwarded good, and find nothing in it objectionable whatever. We should think it probably got from sainfoin, or clover. The taste of prussic acid we are *not* acquainted with.

A. S., *Co. Antrim.*—1. *Removing Bees from Trees.*—It is always difficult to give advice as to removing truant swarms from trees and other awkward places. Probably by placing a skep over the hole 10 inches in diameter, and smoking from below, they may be induced to leave and ascend into the skep; but we rather doubt it. Failing this, can you cut out the combs they have built and brush the bees from them into a hive containing some combs and brood, andt place the latter over the top hole to induce the straggling bees to join their fellows? This will depend on whether you are able to reach them through the top hole. If not removed they will, as you say, probably die during the winter. 2. *Driving.*—We should drive a swarm from the straw skep now, and place them in a bar-frame hive on, say, four sheets of foundation. In twenty-one days after all the brood has hatched drive all the bees and unite them to those in the bar-frame hive, giving more foundation, then secure all the honey in the straw skep; and should the season remain favourable those in the bar-frame hive will be in good order for winter. If necessary you must feed the swarm, and if the stock has not enough about the middle of September to last them over winter, that must be fed up as well. 3. Probably No! except the season is remarkably fine in late autumn to allow comb-building and feeding.

J. B. S.—*Red Clover.*—Being red clover, it is very questionable whether the returns would compensate you for the trouble; moreover, being only half a mile distant, the bees will work it if they can find nothing more profitable. Were the distance greater, and the crop white or alsike clover, or better still, sainfoin, it would probably be worth your while, but under the circumstances, you had better 'let 'em alone.'

ROBERT WELFORD.—*Books on Bee-keeping.*—We can confidently recommend for your use as a beginner *Manage-*

ment of Straw Skeps (1d.); *Modern Bee-keeping* (6d.) Cowan's *Guide-book*. These will give you all the information you require, and will be sufficient till you are further advanced in bee-keeping. The above books are procurable from J. Huckle, Kings Langley, Herts.

HIGH PEAK.—*Bleaching Honey.*—Exposure to the sun will cause the wax of sections to whiten. Stirring honey will, by destroying the grain, give it a whiter appearance. But we should prefer honey to remain in its natural colour.

T. P. M.—1. *Specific Gravity of Honey.*—This depends on the chemical composition of honey. Sometimes honey is found as liquid as sweetened water, at other times so dense that it becomes granulated before the cells are sealed. There is consequently much difference among the authorities; but the average specific gravity of honey is 1·350. 2. *Cubic Contents of one Pound of Honey.*—If we take as our basis clover honey, the specific gravity of which is 1·370, it would be rather less than twenty-one cubic inches to the pound.

H. J. C.—*Rotten Brood.*—The five pieces of comb were forwarded to Mr. Cheshire. This is his reply:—'There seems some mistake. I have been unable to find any evidence of rotting brood, and but one cell sealed, and that contained a mature bee (dead). Bees do die in the cell from other causes than either foul brood or chill, but the question is too large to discuss in small limits.—F. C.'

IGNORAMUS.—The easiest method would be to melt the combs.

E. C. T.—1. *Carbolic Acid Solution.*—The carbolic acid solution consists of four tablespoonfuls of the acid to one quart of water, and well shaken before using. A portion of the mixture is kept in a wide-mouthed bottle, and applied with a goose-quill. 2. *Sections.*—Sections must be carefully scraped to remove propolis.

Received from Messrs. Abbott Bros., Southall, their catalogue, containing prices for June, July, and August, 1887.

Show Announcements.

Giving Name and Address of Secretary, Date and Place of Show, Date of Closing Entries. Terms: Three Insertions and under, Two Shillings and Sixpence; additional insertions, Sixpence each. No charge made to Associations whose Shows are announced in our general Advertising Columns.

July 21.—Prescot Horticultural Show. R. Rigby, Secretary, Station Road, Prescot, Lancashire.

July 20-22.—Lincolnshire Agricultural Society at Spalding. Entries close July 4. R. R. Godfrey, Secretary.

July 26-28.—Gloucestershire Agricultural Show at Cheltenham. Entries close July 12. W. D. Slade, Sec.

July 26, 27.—Warwick Agricultural Society at Sutton Coldfield. J. N. Bower, Secretary.

July 27.—Bishops Waltham Show. (Hants and Isle of Wight Association.) H. W. West, Hon. Sec., Swanmore House, Bishops Waltham.

July 27.—Kent Association, at Ashford, Kent. Hon. Sec., J. Garratt, Hockenden, St. Mary Cray, Kent.

August 3-5.—Yorkshire Agricultural Society at York. Secretary, H. L. Rickards, Poole, near Leeds.

August 9, 10.—Irish Bee-keepers' Association at Salthill Gardens, near Dublin. Entries close August 2. Hon. Sec., Henry Chenevix, Blackrock, Dublin.

August 11.—Handbridge, Chester St. Mary's Horticultural Show. W. E. Little, Hon. Secretary, Eastgate Row, Chester.

August 24.—Lancaster Agricultural Show. W. Liddell, Hon. Secretary, Dale Street, Lancaster.

August 31-Sept. 3.—Royal Manchester and Liverpool Agricultural Show at Manchester. W. Lees McClure, Hon. Secretary, The Lathoms, Prescot, Lancashire.

Business Directory.

For the use of Manufacturers and Purchasers of Bee-keeping Appliances.

The Name and Address and Business of any Manufacturer will be inserted in this List, under one heading, for One Pound per annum. Additional headings, Five Shillings extra. Advertisers in 'THE BEE JOURNAL,' whose orders amount to Five Pounds per annum, will be inserted Free.

HIVES AND OTHER APPLIANCES.

ABBOTT BROS., Southall, and Merchants' Quay, Dublin.
APPLETON, H. M., 256A Hotwell Road, Bristol.
BAKER, W. B., Muskham, Newark.
BALDWIN, S. J., Bromley, Kent.
BLOW, T. B., Welwyn, Herts.
BRITISH BEE-KEEPERS' STORES, 23 Cornhill, E.C.
BURTT, E. J., Stroud Road, Gloucester.
EDEY & SON, St. Neots.
HOWARD, J. H., Holme, Peterborough.
HUTCHINGS, A. F., St. Mary Cray, Kent.
MEADHAM, M., Huntington, Hereford.
MEADOWS, W. P., Syston, Leicester.
NEIGHBOUR & SONS, 149 Regent St. & 127 High Holborn.
STOTHARD, G., Welwyn, Herts.
WERSTER, W. B., Wokingham.
WOODLEY, A. D., 26 Donnington Road, Reading.
WREN & SON, 139 High Street, Lowestoft.

HONEY MERCHANTS.

ABBOTT BROS., Southall, and Merchants' Quay, Dublin.
BAKER, W. B., Muskham, Newark.
BALDWIN, S. J., Bromley, Kent.
BRITISH BEE-KEEPERS' STORES, 23 Cornhill, E.C.
BRITISH HONEY CO., Limited, 17 King William St., Strand.
EDEY & SONS, St. Neots.
HOWARD, J. H., Holme, Peterborough.
NEIGHBOUR & SONS, 149 Regent St. & 127 High Holborn.

FOREIGN BEES AND QUEENS.

ABBOTT BROS., Southall, and Merchants' Quay, Dublin.
BAKER, W. B., Muskham, Newark.
BALDWIN, S. J., Bromley, Kent.
BLOW, T. B., Welwyn, Herts.
BENTON, F., Munich, Germany
EDEY & SONS, St. Neots.
HOWARD, J. H., Holme, Peterborough.
NEIGHBOUR & SONS, 149 Regent St. & 127 High Holborn.
SIMMINS, S., Rottingdean, near Brighton.

METAL ENDS.

ABBOTT BROS., Southall, and Merchants' Quay, Dublin.
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BALDWIN, S. J., Bromley, Kent.
BLOW, T. B., Welwyn, Herts.
BRITISH BEE-KEEPERS' STORES, 23 Cornhill, E.C.
EDEY & SONS, St. Neots.
LYON, F., 94 Harleyford Road, London, S.E.
MEADOWS, W. P., Syston, Leicester.
NEIGHBOUR & SONS, 149 Regent St. & 127 High Holborn.

COMB FOUNDATION.

ABBOTT BROS., Southall, and Merchants' Quay, Dublin.
BALDWIN, S. J., Bromley, Kent.
BLOW, T. B., Welwyn, Herts.
BRITISH BEE-KEEPERS' STORES, 23 Cornhill, E.C.
EDEY & SONS, St. Neots.
HOWARD, J. H., Holme, Peterborough.
NEIGHBOUR & SONS, 149 Regent St. & 127 High Holborn.
STOTHARD, G., Welwyn, Herts.

HONEY GLASS MERCHANTS.

ABBOTT BROS., Southall, and Merchants' Quay, Dublin.
PEARSON, F., Stockton Heath, Warrington.

NOTICE.— ☞ *If you would Sell your Honey, place it before the Public in an attractive form, for which purpose use only*

WOODLEY'S NEW FANCY TIN CASES

For the SALE and EXHIBITION of SECTION HONEY, coloured by Patent Process in four different tints, with Glass both sides. Price **22**/- per gross; **2**/- per dozen. Sample post free for 6 stamps.

A. D. WOODLEY, Manufacturer of every Description of Bee-keeping Appliances, **Donnington Rd., Reading.**

GREAT REDUCTIONS IN PRICE.

Stock Foundation, 2/- per lb.; 5-lb. Parcels, **9**/3; 10-lb. Parcels, **18**/-. **Super Foundation, 2**/9 per lb. 5-lb. Parcels, **13**/6. Guaranteed purity.

Sections, the very finest and best White Basswood, open four bee-ways, 1-lb., $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{2}$ or 2 ins., **3**/- per 100; **11**/- per 500; **21**/- per 1000. 2-lb., $5\frac{1}{4} \times 6\frac{1}{4} \times 2$ in., **3**/6 per 100.

First Prize, Silver Medal, *Berks and Hants Bee-keepers' Show, Royal Counties Agricultural Show, Reading.* First Prize, *Wilts Agricultural Show, Swindon.*

Straw Skeps, thoroughly well made, with wood tops and large Supering Hole, **18**/- per dozen, **1**/8 each.

SEND FOR PRICE LIST, FREE ON RECEIPT OF POST CARD.

WANTED.—A PARTNER with £500, to join a Practical Apiarist and Queen-raiser, holding a First Class Certificate of the British Bee-keepers' Association, for the purpose of Raising Ligurian Queen Bees in the Island of Kangaroo, South Australia. Address, W. G. CAMPBELL, S.S. 'Port Pirie,' Adelaide, to end of August; subsequently c/o MARSHALL BROS., 106 Market Street, Sydney, Australia.

SUPERIOR BEE VEILS.

WIRE GAUZE FRONTS, 1*s.* 2*d.* each, 3 for 3*s.* Traps for Cleaning Supers, 6*d.* each, 3 for 1*s.* Post free. Address, W. CRISP, Halstead, Essex. A 2700

FOR USE WITHOUT SEPARATORS OR with the SIMMINS' SEPARATOR thickened at the Corners by a Half Bee-space.

20,000 $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{3}{4}$ V-CUT, Open or Close Sided, First-Class AMERICAN SECTIONS, now landed at Liverpool. Free on rail or steamer there, **20**/- per 1000; **10**/6 for 500. For smaller quantities apply to J. H. HOWARD, Holme, Peterborough; or to R. WHITE & Co., Importers, Patrickswell, Limerick. The Trade supplied.

LYON'S Patent METAL ENDS.

THE only perfect pattern. The metal being flush with the inside of the Hive side, CANNOT BE FIXED TO IT BY PROPOLIS. All the so-called Improvements CAN.

The Special Alloy used allows them to be LIGHT YET STRONG. One gross weighs $5\frac{1}{4}$ lbs.

Price for 1887 **5**/**6** per gross.

DR. PINE'S VEILS.

Prize Medal, 1879, for the best Bee Dress. The only Medal ever awarded to a Veil, **2**/**2** each, post free. Every genuine Veil bears the Registered Trade Mark.

DR. PINE'S LOTION.

The ONLY CURE for Stings, **1**/**8** per bottle, post free.

CHESHIRE CURE.

Guaranteed, with Directions, **1**/**2** per bottle, post free.

Methyl Salicylate, or 'Sting Preventer.'

1 oz. bottle, post free, **1**/**8.**

HIVE MAKERS supplied with SPRINGS, GLASSES for Sections, PHENOL, METHYL SALICYLATE, in bulk, &c., &c., at lowest prices.

F. LYON, 94 Harleyford Rd., London, S.E.

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G. STOTHARD, British Hive Factory, Welwyn, Herts.

The oldest Weekly Bee Paper in the World.

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Established in 1861.

Price 6*s.* 6*d.* per annum, post free.

T. G. NEWMAN, 925 West Madison Street, Chicago, U.S.A.

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The best Journal of its kind, edited and published by the renowned C. F. H. GRAVENHORST, Brunswick.

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Sample copies sent on request.

Also, 'DER PRAKTISCHE IMKER.' Compendium of Rational Bee-culture, by C. F. H. Gravenhorst. Third enlarged and improved edition, with fifty-two new original Pictures, and a frontispiece. Price 4 marks (4*s.*), stitched; well bound, 5 marks.

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FOR

Extracted and Comb Honey, and the Prevention of Swarming.

BY T. W. COWAN, F.G.S., F.R.M.S.

Post Free, Threepence Halfpenny.

J. HUCKLE, KINGS LANGLEY.

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BY T. W. COWAN, F.G.S., F.R.M.S.

Post Free, Sixpence Halfpenny.

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HONEY AS FOOD. By FRANK R. CHESHIRE, Esq., F.R.M.S. Price 3*d.*

ADULTERATION OF HONEY. By OTTO HEHNER, Esq., F.C.S., F.I.C. Price 6*d.*

Address J. HUCKLE, Kings Langley, Herts.

SWARMING SEASON.

TIME SAVED IS MONEY EARNED!

All Goods ready for instant Delivery.

Just to hand, a Shipment of the Finest and Whitest AMERICAN SECTIONS ever imported, 11/- per 500.

BEES.—ENGLISH SWARMS, 10/6 each. We also have on hand BENTON'S First Grade CARNIOLAN QUEENS, 9/- each; SYRIANS, **17/6**; PALESTINE, **12/6**.

NUCLEI (THREE FRAME).—CARNIOLAN, 20/-; PALESTINE, 25/-; SYRIAN, 30/; including Combs, Brood, and Food. SWARMS at same prices; if in Hives (TEN FRAME), add 5/-.

SYRIO-CARNIOLAN Home-bred QUEENS.—These are extremely Prolific, stocks Winter well, and are good Honey gatherers. See *B. B. J.*, p. 22. A limited number from **7/6** to **10/-** for selected.

WOIBLET SPUR EMBEDDER, 1/6 each.

EDEY'S Improved SMOKER, with Moveable Shutter and Flue Cleaner, 2/9 each.

BINGHAM, Imported, 7/6. Fuel for ditto, 3d. per lb.

EDEY'S COTTAGER'S EXTRACTOR (52). This revolves two Combs at a time; the Honey may be emptied by the Screw-valve at foot. Not shown in engraving. Price **17/6**; Crate, **2/-**.

EDEY'S Method of Fixing FOUNDATION in Dovetailed Standard Frames, Wired. Send for WIRING OUTFIT of 1 dozen Frames, Foundation Nails, all necessary Tools, **7/6**. See List.

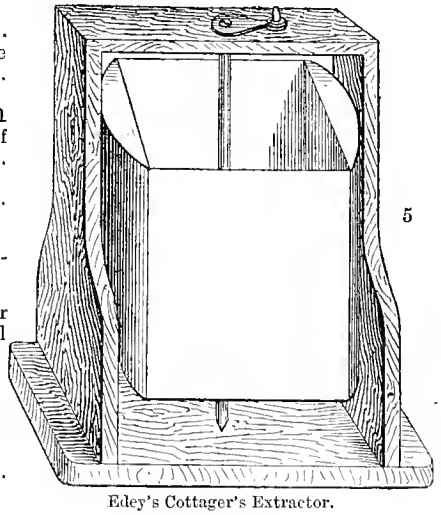
LOCK-UP TRAVELLING CAN, to hold 56 lbs. Honey. Price **5/9**.

NESTED TINS for Honey, the Set of 4, holding together 35 lbs., price **1/4**; postage **6d.**

A Large Stock of **HIVES, FRAMES, SECTIONS,** and most other Goods of approved Quality are waiting Orders. These we can fill Promptly, and have not received a complaint.

DOUBLE your HONEY HARVEST by Using WORKED-OUT COMBS!

Clean WIRED COMBS in Frames, 10/- per doz.



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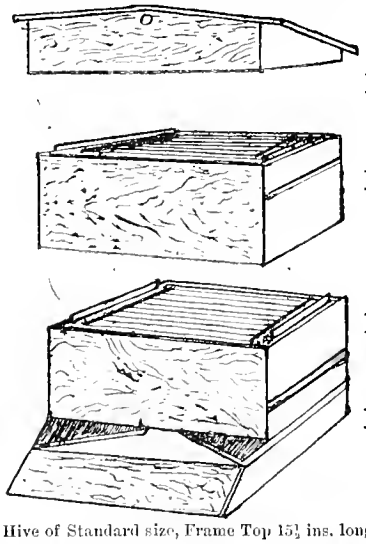
Edey's Cottager's Extractor.



Hive of Standard size, Frame Top 15½ ins. long.

CHEAP, STRONG, EASILY MANIPULATED.

EDEY'S DOUBLER (7 A). Complete for Doubling or Tiering. As shown, with 20 Frames, 2 Dummies, Waterproof Cover, Contracting Entrances, price **10/6**. In flat, each, **5/-**.

For Supering: Complete Hive, **6/6**; Section Crate, **2/6**; Additional Body-box, **2/6**; Crate of 5 Hives, **23/9**.

THE UNIVERSAL (No. 7). Of superior workmanship, high outer sides. A first-class Hive for general work, with Super Crate, price **12/6**.

FOUNDATION.—In addition to the ordinary Brood and Super, we have a few Parcels of very Thin and Delicate SUPER FOUNDATION, for *filling* Sections completely. Average weight, 20 sheets to the lb. **3/6** per lb.

EDEY'S DOVETAILED FRAMES. Best and Cheapest made. No Frame-block needed. **2/-** per dozen; **12/6** per 100.

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EDEY & SON, Steam Joinery Works, ST. NEOTS.

THE BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, Cambridge Circus, W.C.'

[No. 265. VOL. XV.] JULY 21, 1887. [PUBLISHED WEEKLY.]

Editorial, Notices, &c.

THE FORMATION OF AN ASSOCIATION FOR NORTHUMBERLAND.

A meeting of bee-keepers and others interesting themselves in the formation of this Association was held in the bee-tent in the Agricultural Show Ground at Newcastle on Thursday, July 14, Mr. McAdams, of Haltwhistle, in the chair. The following resolutions were passed unanimously:—

(1.) That a Bee-keepers' Association be formed for the County of Northumberland in affiliation with the British Bee-keepers' Association.

(2.) The objects of the Association shall be to teach the residents of the county the most profitable and humane system of bee-culture, and to spread a knowledge of the uses and disposal of bee-produce.

(3.) That the Duke of Northumberland be requested to act as President of the Association.

(4.) That the following do form a provisional Committee with power to add to their number, viz., Messrs. R. W. Bell and G. Charlton of Hexham, Messrs. McAdam and J. F. Graham of Haltwhistle, Messrs. Sisterson and Kyle of Bellingham, Messrs. T. W. Atkinson and W. Codling of Morpeth, Messrs. J. Luck and J. Mack of Felton, Messrs. Greenwell and Carr of Alnwick, Messrs. Colville and Best of Belford, and Robson and M. J. Archer of Rothbury. The duties of the provisional Committee being to prepare rules, secure members, and make such suggestions as may seem to them advisable for the future government of the Association, and to report to a future meeting to be held not later than the third Monday in September at Newcastle.

Residents of the county being desirous of assisting in the formation of the Association are requested to communicate with the Hon. Secretary. Mr. F. E. Schofield, Newcastle Street, Morpeth.

THE STEWARTON HIVE.

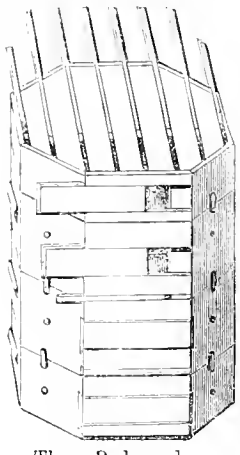
A correspondent who has purchased some Stewarton hives, requests that some instructions should be given in our columns as to their management. He reminds us that since we last described this system of bee-keeping many years have passed away, and that many new subscribers to the *Journal* have not had an opportunity of gaining any knowledge of it. In the first volume of the *Journal* this system was well ventilated by the communications of 'A Renfrewshire Bee-keeper,' who has introduced many improvements into the Stewarton hive, and who has ever had a high opinion of its excellence. In November, 1880, the Rev. Dr. Bartrum read a very valuable and excellent paper entitled 'The Stewarton Hive, the Hive of the Busy Man,' at a conversazione of the British Bee-keepers' Association. Since that time there has been no description of it in the *Journal*, and, therefore, we have much pleasure in complying with the request of our correspondent.

The hive, as Dr. Bartrum informs us, derives its name from the town of Stewarton or Stuart-town, in the north of Ayrshire, on the borders of Renfrewshire. It is said to have been invented about the year 1819, by a cabinet-maker named Robert Kerr, of that place, a man as remarkable for his skill in bee-keeping, as in the secrets of his particular trade. 'Bee Robin' was the nick-name given by his neighbours to Robert Kerr, and we can well imagine that his skill as a workman assisted him in no slight degree in improving the form of the wooden boxes in which he kept his bees. The octagonal form of the Stewarton hive was without a doubt known before Kerr's time. 'The Renfrewshire Bee-keeper' informs us that its invention is generally ascribed to the Rev. William Mewe, minister of Eastlington in Gloucestershire, about the year 1652. In April, 1675, John Gedde obtained a patent from Charles II. for his octagon boxes. They appear, however, to have been used in Scotland with good success before that date. These octagons consisted simply of a series of boxes of uniform depth, with a 5-inch square central hole in each top. Robert Kerr seems to have introduced the moveable slides of wood working in grooves 1½ inch bars on top of what are called the body boxes. Of late years various changes have been introduced by 'The Renfrewshire Bee-keeper.'

Mr. James Allan, Stewarton, Ayrshire, who is the principal manufacturer of these hives, gives us the following information:—

The Stewarton Hive.—The non-swarming or storifying system of keeping bees in colonies has been successfully wrought in Scotland for centuries, and the

principle is now being adopted by advanced bee-keepers in England and America under the name of *tiering*.



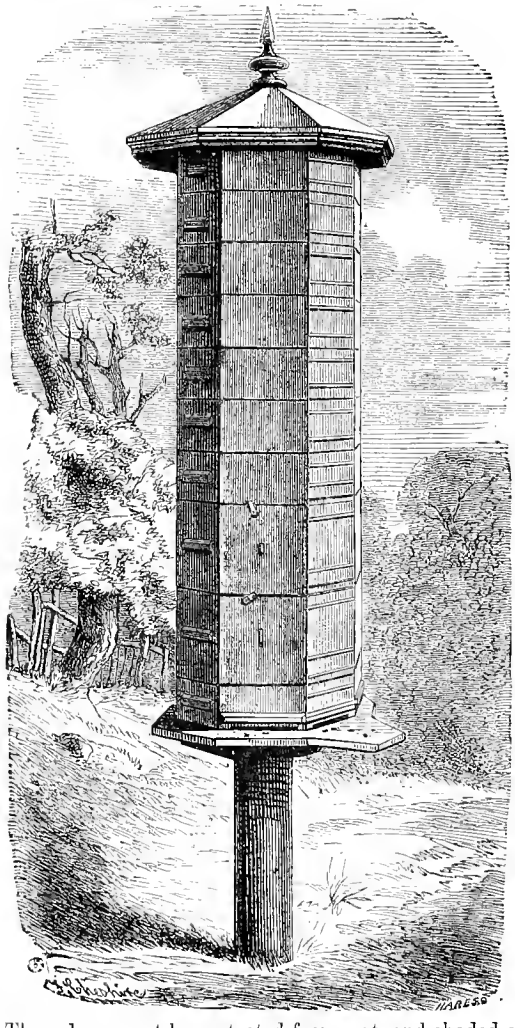
Three Body and one Honey Box.

This honey-yielding hive originally consisted of three octagon body or breeding boxes, 14 inches wide inside by 6 deep. These formed what was was called a set, 18 inches being usually deemed sufficient depth of breeding space for a colony; while the octagon supers or honey boxes were also 14 inches wide by 3, 3½, and 4 inches deep, and were divided sectionally when so required. All the boxes, breeding and supers, carried alike seven immoveable bars 1½ inches broad. The ⅜ bee-spaces between these were filled with moveable strips of wood called slides—with shuttered windows, front and back, sliding doors (locally termed *mouth-pieces*), hooks or screws for tying together or weighing, wooden buttons to prevent displacement, with pegs to take the place of slides and plug when the slides were withdrawn, complete the description. The breeding-boxes are now supplied with 9 1½ inch moveable bars.

The Renfrewshire Stewarton.—Nearly thirty years ago 'A Renfrewshire bee-keeper' met with the Stewarton hive and improved it by introducing the moveable comb system, increasing the depth of boxes to seven and nine inches respectively, so as to make them available singly for a swarm, or two 9-inch boxes forming a set for a colony, narrowing the width of bars in the breeding boxes to 1⅜ inches, the natural thickness of brood combs, retaining the 1½-inch width for end and super comb bars, as most suitable for honey storage. The four central complete frames, as well as the bars in all the boxes, are grooved to receive comb-foundation, and kept in position with ½-inch brass screws, having triple instead of single entrances to the breeding boxes. So changed the hive became known to the trade as 'The Renfrewshire Stewarton.'

Management.—After a breeding-box has been fitted with comb-foundation guides, and a set of slides run in, it is ready to receive a prime swarm. This hive being detachable from cover and free of legs, can be set over a swarm and bees run up, or shaken into it, with as much facility as a straw skep. So soon as a second prime swarm can be obtained—say within eight or ten days—it is similarly hived in another breeding-box, and is immediately set down alongside the earlier. At dusk, same evening, the first is set on top of second hive swarm, closing sliding door of upper box at once, and the slides of the lower box withdrawn one after the other, and as quickly as possible spaces plugged with corresponding pegs to keep in the bees. It is well for expedition these be previously arranged on top of upper box ere a slide be withdrawn. Should the evening be at all chilly, a puff or two of smoke at entrance expedites the ascent and union. The object of combining two prime swarms in one colony is to ensure a harvest of finest virgin honey the same season. A single prime swarm could only at most be expected to fill the colony for the first summer without yielding any surplus.

If weather continue fine and honey abounding, the conjoined colony will speedily comb their breeding-boxes, and require one or two supers for honey storage. If after sheeting with narrow strips comb-foundation, two supers be used, run a full set of slides into the upper, and a full set of pegs into the lower. Every subsequent addition to the super file must alone contain a set of slides; every super below it be pegged so as to give the honey-gatherers unrestricted passage through all the supers. Access to the supers from the breeding-boxes is to be afforded by withdrawing the outermost slide on either side and substituting pegs therefor. Should honey flow continue with settled fine weather, the second outermost slide may be drawn, either in whole or in part, in keeping with the weather, but on no account must other slides be touched, otherwise the queen would in all probability ascend, and the beauty of the supers be destroyed. So soon as the supers are set on, they must at once be covered all round with four-ply warm woollen tied round closely. After honey is being stored in supers, if 7-inch breeding-boxes be employed, a third pegged breeding-box is given below to prevent swarming.



The colony must be protected from wet, and shaded on sunny side by a full-sized archangel mat hung loosely, and when in full work all the three entrances in lower box fully drawn for the sake of ventilation, besides affording freest egress and ingress to the overflowing population. This hive offers facilities in skilled hands for supering and nadiring to any extent.

All fresh additions of super space must be given by placing the empty on the top of the filling ones and breeding space at bottom of the pile. In an extra good season the 'Renfrewshire Stewarton' colony required seven full-sized supers (see illustration) to keep the bees fully employed, and yielded close on 200 lbs. of honey by the end of the season. The lowest and successive supers had better be removed to preserve their purity so soon as

central comb can be seen through windows to be sealed out. This is best effected in the middle of a fine day, when a large proportion of the workers are absent in the fields, by temporarily running in the slides of upper breeding-hox, and carefully drawing a strong thread or thin brass wire below and above each completed super to sever comb attachments. The preceding illustration of a 'Renfrewshire Stewarton' in full work, from a photograph, rests on a 6-inch glazed fire-clay pipe, faucet end sunk 16 inches firmly into the ground, a long bung of wood in upper end, on which is screwed a 9-inch square of inch wood, to which the moveable floor-board is held down with 2-inch iron button.

By the kindness of Dr. Bartrum we are informed that he has received a telegram announcing the safe arrival of Mr. and Mrs. Cowan at New York on Monday, the 18th.

We note that Dr. Bartrum has been presented by the Earl of Verulam to the Rectory of Wakes Colne, Essex. The headmastership of King Edward VI.'s School, Berkhamsted, will therefore shortly be vacant.

Mr. W. G. Campbell, Hornefield, Tottenham, who, we announced in our issue of July 7, passed his examination for first-class certificate, has sailed for Australia.

USEFUL HINTS.

Weather.—In our locality the drought still continues, and the bees in consequence languish. In the shorn meadows the white clover blooms not, and from their surface all verdure has vanished. The fields will soon be whitening for the harvest, and the honey-flow in the year of grace '87 is all but over. Even the limes yield not their accustomed nectar, and no refreshing shower revives their drooping foliage. Short has been the harvest, but in many districts bountiful and the quality most excellent. The heather is yet to come—heather, true Scotch heather—the queen of honey plants, alone yielding nectar fit for the gods. We southerners must content ourselves with honey from inferior plants, as blackberry, buckwheat, ivy, &c. For ourselves we look forward with hope to an ingathering from the *Statice limonium* (sea lavender), from which, in the month of August last, our supers were refilled with sections of the whitest, and withal of well-flavoured, comb-honey.

Changing Queens.—From the present time to the end of next month we consider the best time for dethroning aged or unprolific queens. Remove a superior queen in her prime from a populous colony, and let her replace one of the condemned ones. In the queenless colony select a couple of brood combs and break down in each a few cells, beneath and around newly laid eggs, towards the end or the middle of the combs, thus inducing the bees to build queen-cells around these selected eggs to the number of six or eight at even distances, and close the hive. On the eleventh or twelfth day afterwards, remove the queens to be superseded, and having carefully cut out from the queenless colony as many queen-cells as required, leaving one or two only, insert them one by one near the centre of the brood-nest in each of the colonies deprived of its queen, and protect each cell by a wire-cloth cage. On the fifth or sixth day after inserting the cells, the young queens will have hatched, and may be liberated if this has not been already done by the bees, any other queen-cells which may have been formed having been previously cut out. Great care is necessary in handling the queen-cells, as the least pressure will destroy the nymph. At the base of the cell a triangular piece of comb should be cut out and inserted with the cell. In actual practice the operation is most easy, and failures rarely occur. As a rule, however, the bees, particularly Italians, will supersede their own queens when requisite, and in an apiary where natural swarming is allowed, there will be little necessity for practising any artificial method.

Italians Best.—Let us give a word of advice in favour of the Italian bee. After an experience of some twenty summers, our good opinion of this race is not only maintained, but increased. An experienced friend who lately visited our apiary, after inspecting colony after colony of Italians busily at work in piled sections of the finest quality, exclaimed, 'Have you no blacks?' Yes, we had blacks also, but on them were no sections, and from half-a-dozen colonies only one swarm had issued, while case after case of first-class sections has been removed from the Italians. Our present strain—the best we ever possessed—are dark-coloured Italians, larger bees, better workers, and more hardy than the lighter strains, and were procured for us from Switzerland by Mr. Neighbour. As producers of comb-honey, both as regards quantity and quality, they have, in our experience, no equals. Quiet as Carniolans to handle, prolific as Cyprians, and in wintering qualities surpassed by none, the dark Italians are, *par excellence*, the bees for us. Even in this exhaustive drought they manage to scrape together and store a little surplus, while others remain at home idle; and where room is given, they are less inclined to swarm than any kind we have tried.

Bacillus Minor.—We notice in several American communications, also in our contemporary, the *Record* (current number), descriptions of diseased brood, which differs considerably in its symptoms from the ordinary foul brood (*Bacillus alvei*). Of this disease we have had cognisance for some years, but always felt inclined to consider it incipient foul brood, which, if allowed to remain undisturbed, would end in the malignant *Bacillus alvei*. The symptoms are—listlessness in the bees, while other colonies are energetically at work; death of the larvæ at all ages, but chiefly in its early stages; putridity, free from the usual offensive smell of foul brood; death of the nymphs, unable to emerge from the cells, but free from putrescence, and pierced and sunken cells: of the few young bees which emerge most are imperfectly developed, some being wingless, others having one wing only, some minus a leg, and many extremely diminutive—the prettiest little dwarfs, indeed, that can well be imagined. Gradually the colony dwindles: although, when possessing a prolific queen, the population is often maintained at par for many months—even to the end of the second year after the commencement of the attack.

On opening a diseased hive there is no offensive smell perceptible, but still there is an absence of the pure fragrance emanating from a healthy colony during the storing season,—a certain acidity which betokens fermentation. With the editor of the *Record*, we are inclined to the opinion that the disease is partly congenital, but not entirely so, since we have known cases in which the contagion has been conveyed from hive to hive, and in which a change of queens has resulted in the infection of the newly-introduced and healthy queen. We have been in the habit of designating this disease by the title of *Bacillus minor*, although its deadly effect, though slower, is equally sure with that of '*Bacillus major alvei*.' That its cause is a species of Bacillus we have not the least doubt, and we hope to be able to induce Mr. Cheshire fully to experiment upon some diseased colonies, and to report the results. Some of the queens lose their pubescence, and become feeble and languid, and whenever, in such cases, an attempt has been made by the bees to supersede the queen, it has invariably failed, the embryo insect perishing either in the larval or pupa stage. Much of the dead larvæ in the early stage becomes desiccated, and is extruded by the

bees, and may often be found on the alighting-board, while beneath may be seen, often in considerable number, the abortive nymphs. Our attempts at curative measures have always failed, although we have applied phenol, salicylic acid (both in syrup and as disinfectants), camphor, coffee, &c. Queens of other infected colonies have, to all appearance, continued in a perfectly normal condition, retaining their pubescence and fertility to the very last. We trust a remedy may soon be found for this insidious and most dangerous disease.

Time of Manipulation.—Mr. Wood (1148) takes exception to the advice given in the last 'Hints' (which were written for us under exceptional circumstances). Truly, we can sympathise with those who have avoided exposure to the sun's rays, during the heat of the day, while manipulating. We have always advocated the following rules:—1. During spring and autumn, when bees are inclined to robbing, manipulate in early morning or late evening, provided always that the temperature is sufficiently high to prevent chilling bees or brood. 2. During the honey-flow, let all manipulations—whether for taking off or putting on sections, examining brood-nest, exchanging queens, withdrawing combs for extracting, *et hoc genus omne*—be performed while the bees are at work in the fields, and *not* when they are all at home, in the morning or evening. The difference between 'spotting' a young queen (or even an old one) will be fully realised *only* by those who have made trial of the above rules, as also will the ease, or difficulty, of removing sections or other supers. But there are exceptions to all rules, and even now, in the middle of July, we scarcely dare open a hive or expose a comb of honey during working hours, since, in consequence of the severe drought through which we are passing, their inclination to rob in our apiary is as keen as at any period of the year.

Fecundation of Queens.—Examination should be made at evening to ascertain whether the young queens are in existence, and laying, which all should be during the present hot season at ten or twelve days of age, if not five or six days earlier. Our queens have all mated successfully without an exception.

Second Swarms Returning.—Mr. Gibbon's experience (1153) is not singular. Small second swarms will often return to the parent hive, as if aware of their inability to found a colony through paucity of numbers. His young queen failed to gain admittance to the parent hive, and sheltered beneath the roof. Had she not been secured she would have led forth the swarm again, or, the bees refusing to follow, would have perished in the attempt.

Space beneath Frames.—The amount of space which should be allowed between the bottom bars of frames and the floor-board seems to be a moot point. Some recommend $\frac{1}{4}$ in., others $\frac{3}{8}$ in., which appears rarely to have been exceeded. Experimentally we have allowed to several newly hived swarms 2 inches, and have not contracted the hives. As we expected, the bees have confined themselves to the frames, building out the combs on full sheets of foundation, adding no brace combs below. The result would, in all probability, have been different had we confined the bees to the frames they were able to cover. Our object in the experiment was to provide space at the bottom of the hive, with a view to a more perfect system of wintering, having repeatedly observed that colonies wintered with an eke beneath the hive had emerged from the most severe winters in a more perfect condition than others not so treated. In case of internal winter dampness, where $\frac{1}{4}$ in. space only is allowed, the lower parts alone of the combs are injured. When from two to four inches have been allowed, perfect dryness of the whole interior has been the result, and there has been no blocking of entrances (left at summer width) by dead bees and refuse.

Honey Prospects.—From most parts of the United States complaints reach us of the failure, to a great extent, of the honey crop. Such reports as—'The lightest honey crop for many years,' 'Clover dried up by drought,' 'Plenty of bees, but little honey,' 'Bees can hardly make a living,' 'Not a pound of surplus taken in this neighbourhood,' and much else to the same effect we frequently read in the American journals. Not since '68 have we in England experienced so dry a summer, and yet in our journals, so far from reading desponding reports of the honey yield, all appears to be *couleur de rose*. Can it be that Englishmen report their *successes* but not their *failures?* At all events we venture to forecast a better price for honey, especially of the higher grade.

Removing Sections.—Even where unfinished we are removing section cases. Our plan of operation is as follows:—On a fine day, between ten o'clock and four, while the bees are in full work, the section case is uncovered and a cloth steeped in carbolic solution and squeezed dry, is spread over it. The entire case is then slightly and gently raised by the leverage of a couple of chisels, allowed to fall back into its place, and slowly screwed round to thoroughly separate all attachments. It is then carried to the honey-room and the sections are removed one by one, the few adhering bees, being brushed off with a feather, quickly return to the hive. The finished sections are stored, and those uncapped are returned to the hive for a few days for the bees to finish. Care is taken to spread a carbolised cloth over the hive while the sections are under manipulation. A weak solution (one part of the acid to twenty parts of water) only, must be used, or all the bees will be driven out of the hive.

Italianising.—The present and next month are the best time for introducing Italian, or other foreign queens. These may now be obtained at moderate prices, and we strongly advise a trial of the dark strain of Italians, being careful to obtain a guarantee of purity of race. Our supply dealers may be fully trusted to send out pure queens, and purely mated, while amateurs, unfortunately, though chiefly no doubt through ignorance, often send out impurely mated queens.

May the fertilising showers soon descend and procure for us a second harvest from revivified white, and second crops of red, clover, ling, cole, mustard, &c.

BEESWAX AND ITS CONVERSION INTO MONEY.

By J. Dennler.

(*Continued from page* 297.)

The Employment of Wax for Economical Purposes.

Beeswax, on account of its lighting powers, is used for the manufacture of candles and wax-tapers. Besides, on account of its tenacity and ductility, firmness and difficulty of melting, it is indispensable for the great industry of making wax figures and for modelling. But also in house-keeping wax renders us important services. In the following we have some of these remedies and recipes:—

(*a.*) *Sewing Wax.*

The beeswax is made into little round balls to give more stiffness and smoothness to the thread for sewing.

(*b.*) *Wood Wax.*

Melt together one part of yellow wax, two parts of rosin, one part of turpentine, and some lard. Let it get slightly cold, and roll out the mass on a slab into sticks. This is the warm-melting wood wax. At the present time the cold-melting wood wax, recommended by Dr. Lucas, is often used, which is prepared from rosin and spirit.

(c.) *Primitive Wax.*

Melt two parts of wax, and stir into it, after it is taken off the fire, one part of turpentine.

(d.) *Wax Polish.*

Mix 200 grammes of potash and 200 grammes of water, heat it to boiling point, and gradually, after repeated stirring, 400 grammes of yellow wax. After this has been boiled again, pour in 900 grammes of water, and heat it until a milky fluid results. This is useful for polishing furniture and floors. (*Els. Loth. Bee-keeper.*)

(e.) *Waterproof Packing Paper.*

Take twenty-four parts of blue soap and four parts of white soap, fifteen parts of wax, and boil it with 120 parts of water. Dip the packing paper into it and let it well soak, and hang it up on cords to dry.

(f.) *Leather Greese.*

For the preparation of this, mix 1½ kilogrammes of pure yellow wax in 1½ kilogrammes of turpentine oil, 1½ kilogrammes of castor oil, 12½ kilogrammes of linseed oil, and 1½ kilogrammes of tar, and let the whole be thoroughly well mixed. The leather by repeated applications (some six months altogether) is protected by this grease against the influence of air, heat, perspiration, or other moisture.

(g.) *Wax Ointment for making Boots Waterproof*

Is prepared by melting together 6½ parts of yellow wax, 26½ parts of mutton tallow, 6½ parts of thick turpentine, 6½ parts of olive oil, and 13 parts of lard, and stirring into this 5 parts of well-mixed lampblack, and the mass is then poured into little wooden boxes. The wax is made warm and is rubbed in with the fingers, by means of which the hard leather is softened, and becomes perfectly water-proof.

(h.) *Means for Removing the Cracks in Horses' Hoofs.*

Wax and honey in equal parts are well melted together over a slow fire, and thoroughly well mixed. It is used after this manner: the hoof having been thoroughly cleansed with tepid water the above mixture is well rubbed in with a brush. After several applications the fissures and cracks disappear, and the hoof gets an advantageous softness.

Application of Wax in Medicine.

(a.) *Remedies for Coughs, Expectoration, Erysipelas of the head.*

Breathe the vapour of wax which has been melted on a hot iron or a brazier.

(b.) *Healing Salve.*

Honey, oil, and wax melted together into a salve hastens the healing of old wounds and fistulas.

(c.) *Marigold-flower Plasters for Wounds.*

Out of marigold flowers a plaster can be made by bruising the flowers and the stalks and mixing it with as much lard as will cover them, letting it boil over a moderate fire for an hour, and it is then squeezed through a cloth. The stuff that is pressed out is put over the fire, and as much yellow wax added as will make it of the consistency of a plaster. If less wax is used, marigold flower salve is obtained. Both preparations are useful in all kinds of wounds.

(d.) *Remedy for Diarrhœa.*

In France the following remedy is found of frequent use:—Scoop out the core of a quince, fill it with hot wax, let it roast for a long time by the fire, and eat it night and morning for three days consecutively.

(e.) *Salve for Wounds left after Removing Warts.*

Prepare a salve of white wax and fresh unsalted butter equal parts, and mix a little white wine with it.

(f.) *Salve for Burns.*

Wax and linseed oil give an excellent plaster for burns. Stahl's burn-salve is made of equal parts of butter and yellow wax.

(g.) *Corn Plaster.*

For corns a good plaster is made of wax, tallow, and some verdigris.

(h.) *Tooth-stopping.*

The tooth-stopping is prepared by melting together 3 parts of pure white wax with 3½ parts of mastic and a few drops of oil of peppermint, and making it into the pill on a marble slab. The hollow teeth are filled with this so that the food may not lodge in them and irritate the nerves of the teeth.

(i.) *Wax Salve for Skin Diseases.*

5 parts of white wax, 5 parts of spermaceti, 5 parts of sweet almond oil, are melted together in an enamelled vessel, and are poured out into little paper boxes, and when cold are cut up into little slabs.

Cosmetic Specialities.

(a.) *Glycerine Wax Balsam.*

2 parts of white wax, 2 parts of spermaceti, 8 parts of sweet almond oil, 4 parts of glycerine, ½ part of attar of roses, are carefully melted together in an enamelled vessel before a slow fire, stirred till it is cold, and put into glass vessels.

(b.) *Crème Céleste.*

1½ parts of white wax, 3 parts of spermaceti, 3 parts of sweet almond oil, are melted together in a porcelain dish over a water bath, and after it is cold 2 parts of rose water are added, with continual stirring.

(c.) *Cold Cream*

Is used to keep the skin delicate and soft. It is prepared by rubbing together in a water bath 1 part of white wax, 2 parts of spermaceti, 8 parts of sweet almond oil, and 5 parts of rose water.

(d.) *Cosmétique.*

Melt in a porcelain dish over a water bath 500 grammes of yellow wax, with 125 grammes of white soap, take it from the fire, let it get cold, and mix in it before the mass has set 5 grammes of bergamot and 1 gramme of Peruvian balsam. It is rolled out into little sticks on a glass or marble slab, and these are covered with paper.

ASSOCIATIONS.

WORCESTERSHIRE BEE-KEEPERS' ASSOCIATION.

A meeting of the Committee was held at Worcester on the 16th inst., Mr. C. H. Haynes presiding. It was with great reluctance that the members present unanimously resolved that owing to an insufficiency of funds it was inexpedient to hold a show of honey, &c., during the present year.

ROYAL AGRICULTURAL SOCIETY'S SHOW.

The Annual Meeting of this Society was opened at Newcastle-on-Tyne on Friday, the 8th of July, when the general exhibition and trials of implements, and the trials at the working dairy commenced. The public were admitted to the whole of the show-yard, including that of the bee-keeping appliances and honey, on Monday, the 11th.

It will, I think, be interesting to give the scope of this

Show as compared with that held at Kilburn and those since held, which are as follows:—

		Stock Exhibited.	Number of Implements Exhibited.	Number of Persons Admitted.
1879	London (Kilburn) ...	2879	11,879	187,323
1880	Carlisle	1485	4196	92,011
1881	Derby	1229	5960	127,996
1882	Reading	1450	6102	82,943
1883	York	1653	6058	128,117
1884	Shrewsbury	1664	5241	94,126
1885	Preston	1563	5318	94,192
1886	Norwich	1823	4656	104,909
1887	Newcastle	1833	3616	126,133

Thursday was the first day of a shilling entrance, when upwards of 77,000 people paid for admission. At Norwich last year there were 42,000, and at York, in 1883, there were 63,000.

No doubt the knowledge that the Prince of Wales and his two sons would visit the Show was an additional attraction to many, and assisted in increasing the numbers to such extent as has never before been witnessed on one day at any agricultural show. Throughout the whole time of the Show we were favoured with magnificent weather.

The bee department had its full share of patronage, and, if possible, more interest was shown than at Norwich. On Thursday the tent containing the hives, &c., and honey, was *crowded* from end to end by people anxious to learn something of '*modern bee-keeping*,' and, if we mistake not, hive-makers had a busy time of it taking orders. The bee-tent was thronged during manipulations, and many were the inquiries as to what time the '*mon* was going to perform with the honey flies.' Could 'Looker On' have seen what we saw, he would not then think that 'the bee-tent and lectures ought to be done away with at once.'

The exhibition was truly educational, and the omission of '*the largest collections*' of the many obsolete and useless bee appliances which are usually sent to swell the numbers, was, we think, most beneficial. Those who wish to commence bee-keeping, and followed the awards in the various classes of appliances, would not be led into making purchases of articles unsuited to their purpose. The schedule was drawn with this idea, and we think the result most satisfactory.

There is one thing which we would like to mention, and that is, the careless way in which some of the exhibits are sent notwithstanding the trouble taken by the Committee of the B.B.K.A. in drawing up rules and instructions to which the approval of the county delegates was obtained, and which were embodied in the prize schedule. Some of our largest firms of hive-makers sent their exhibits without fixing the labels upon them, so that it was impossible for the Secretary or show manager to stage the goods. It is evident the rules on the schedule are not read, or the mistakes could not be made, and the articles disqualified in consequence.

In Class 212, for the best hive, not to exceed 15*s.*, it says, 'The exhibit must include two similar body boxes,' &c., &c. Notwithstanding this, four out of the ten hives sent were disqualified on account of the two body boxes being quite different in size, and in no way *similar* except that they were made of wood. Again, in the extractors, Class 214, the schedule reads, 'With arrangements for reversing the sides of the combs either automatically or by hand, without necessitating the taking out of the frames of comb or the wire cage containing the same in order to turn the other side for extracting.' Surely this is plain enough, and yet three or four were disqualified because they did not comply, and the frames had to be taken out of the extractor before the sides could be changed. In Class 215, *Section Racks*, two or three were disqualified, as they did not comply with the schedule. In hives, the first prize was awarded to Messrs. Neighbour for a well-made hive, which is a marvel of cheapness, and is certainly all that can be desired; and as they are bound to supply similar hives at the same price, 15*s.*, for twelve months, we describe it, that those who did not see it at the Show may have an opportunity of availing themselves of procuring such a bargain. They supply floor-board and stand with *two similar body* boxes with *Lee's patent frames*, an additional body box with moveable frame supports which can be taken out when frames are not used, when it will form an outside protection for racks of sections, or can be inverted and slipped over the stock hive in winter as an additional protection, a rack of twenty-one sections and separators with suitable roof. The second prize went to Messrs. Abbott Bros. for two suitable 'Gayton' hives, both filled with their patent frames and a good rack of twenty-one sections floor and roof; the materials and workmanship are good and well worth the money, 15*s.* The third prize was given to Mr. S. J. Baldwin, for a well-made hive, two similar body boxes, rack of sections, floor-board, and roof. In the class for the best storifying hive for 10*s.* 6*d.*, the hives were all very good and cheap for the money. It is somewhat surprising that although Newcastle is so close to Scotland, none of our Scotch friends exhibited either hives or honey. The chief prizes, both for comb and extracted honey, were awarded to bee-keepers in the Southern counties,—4 to Berks, 4 to Herts, 3 to Norfolk, and 1 to Suffolk, 1 Lichfield, 1 Nottingham, and 1 Yorkshire.

The sections were not so good as we have sometimes seen them, but we understand that the judges considered the extracted honey of very fine flavour and quality.

The judges were Mr. John M. Hooker, Mr. Walter Martin, and Mr. W. Raitt.

The following are the list of awards:—

Hives, Honey, &c.—For the best and most complete Frame-Hive for general use in an apiary, with arrangements for summer and winter use—1, G. Neighbour and Son, 1*l.*; 2, Abbott Brothers, 15*s.*; 3, S. J. Baldwin, 10*s.* For the best and most complete Storifying Frame-Hive, with arrangements for summer and winter use, price not to exceed 10*s*, unpainted—1, G. Neighbour & Son, 1*l.*; 2, Dines and Son, 15*s.*; 3, Abbott Brothers, 10*s.* For the best honey extractor—1, W. P. Meadows; 2, Abbott Brothers, 10*s.* For the best two Section Racks, price not to exceed 3*s.* 6*d.* each—1, Abbott Brothers, 15*s.*; 2, W. B. Baker, 10*s.*; 3, Turner & Son, 5*s.* For the best feeder for slow stimulating feeding—1, W. P. Meadows, 10*s.*; T. B. Blow, 5*s.* For the best Feeder for quick autumn feeding, capable of holding at least 5 lbs. of food at a time—1, G. Neighbour & Son, 10*s.*; Abbott Brothers, 5*s.* For the best large Smoker—1, T. B. Blow, 10*s.*; 2, W. P. Meadows, 5*s.* For the best ordinary sized Smoker—1, G. Neighbour & Son, 10*s.*; 2, W. Dixon, 5*s.*; 3, W. P. Meadows, highly commended. For any other appliance for quieting Bees.—W. B. Webster, 10*s.* For the best sample of Worker Comb Foundation in sheets for Standard frames, to consist of 2 lbs. of thin for supers and 2 lbs. of thick—Abbott Brothers, 15*s.* For Useful Inventions introduced since 1885. Special prizes according to merit—Silver Medals were awarded to A. D. Woodley (Tin Section Crates), W. P. Meadows (W. B. Carr's Metal Ends), A. Goodman (Comb Foundation Mill), James Lee (new Method of making frames, James Lee (Self-fastening Section), James Lee (System of Hive Construction for sending out frames in the flat, no nailing required), Abbott Brothers (Patent Frame Groove), British Honey Company (Mella). Bronze Medals, W. P. Meadows (Raitt's Honey Press), A. Goodman (Metal ends). Certificates, W. P. Meadows (Howard's Section Glazing); W. P.

Meadows (Lamp and Can for Uncapping); W. P. Meadows (Stand for Uncapping); T. B. Blow (Queen-introducing stage); W. B. Webster (Swivel Frame Lifter). For the best twelve Sections $5\frac{1}{4} \times 6\frac{1}{4}$ of Comb Honey—1, W. Woodley, 1*l.*; 2, H. Beswick, 10*s.*; 3, Miss M. L. Gayton, 5*s.* For the best twelve Sections $4\frac{1}{4} \times 4\frac{1}{4} \times 2$ of Comb Honey—1, W. B. Baker, 1*l.*; 2, H. Beswick, 10*s.*; 3, H. Wood, 5*s.* For the best twelve sections $4\frac{1}{4} \times 4\frac{1}{4}$ of Comb Honey—1, H. Beswick, 1*l.*; 2, Miss M. L. Gayton, 10*s.*; 3, A. D. Woodley, 5*s.* For the best twenty-four 1 lb. glass jars of Run or Extracted Honey—1, W. Woodley, 1*l.*; 2, Miss M. L. Gayton, 10*s.*; 3, W. F. Askew, 5*s.*; W. E. L. Duffin, George Colville, and J. Lane, highly commended. For the best twelve 2 lb. glass jars of Run or Extracted Honey—1, Miss M. L. Gayton, 1*l.*; 2, W. C. Brown, 10*s.*; 3, J. Townsley, 5*s.* For the best Exhibition of Honey from one Apiary in quantity not less than 1 cwt. —1, W. Gulston, 30*s.*

We regret that the following numbers in the Catalogue were disqualified, not having complied with the conditions of entry, viz. 1, 3, 8, 11, 22, 24, 25, and 34, belonging to —Messrs. Neighbour (1, 3, 25, 34), James Blake (8), Dines (11), W. B. Baker (22), W. P. Meadows (24).

The Judges were Messrs. J. M. Hooker, Walter Martin, and W. Raitt.

The Bee Department was thronged with visitors throughout the Show. Sir M. White Ridley, Bart., Lady Ridley (at whose residence H.R.H. the Prince of Wales stayed during the Show), Lord Armstrong, and other notabilities, paying the department a visit. A large number of sales was effected, a very small portion of the exhibits being returned 'unsold.'

Correspondence.

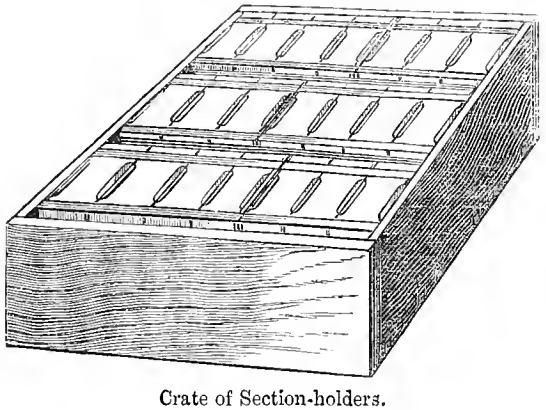
The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts (see 2nd page of Advertisements).*

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

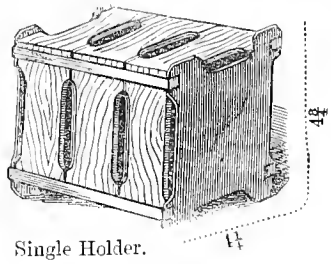
REVERSIBLE SECTION-HOLDERS.

[1156.] I now send you a sketch of my reversible section-holders, they are made of stout tin to hold either



Crate of Section-holders.

three or four $4\frac{1}{4} \times 4\frac{1}{4}$ sections, the width of sections being so variable I have, after consulting the best authorities, had the holders made to suit a section $1\frac{1}{16}\frac{5}{6}$ in width, the ends are connected with strip of tin flat top and bottom one side and angled on the other, to keep the sections in place. The ends are $4\frac{1}{4} \times 4\frac{3}{4}$ with slots on the four sides, allowing the bees free access to the sections all round the extra $\frac{1}{2}$-inch in width ($4\frac{1}{4} \times 4\frac{3}{4}$) projecting $\frac{1}{4}''$ on each side, being to keep the rows this distance apart.



Single Holder.

The dividers have also $\frac{1}{4}''$ slot on the four sides, and are therefore most suitable for use with four bee-way sections. All are made by machinery, of stout material, with a view to their lasting, they are quickly reversed, easily removed from the section-crate, a single section can be taken out and replaced without trouble or loss of time, they also afford a safe means of packing sections for transit. In the crates I have had made, I rest the section-holders on the edge of a strip of angled tin, thus offering the least possible surface for propolisation.—W. H. JENKINS, *Swansea.*

BEES WORKING IN THE SECTIONS.

[1157.] The one-pound sections for comb honey have become very popular. They are attractive in appearance, and hence sell well. They hold about the quantity an ordinary family desires for one meal. In some quarters the two-pound sections are used extensively, but the tendency is to the smaller section. In buying sections be sure that they are clean, and that they are accurately made, so as to fit together neatly and firmly. Nearly all the sections are now dovetailed. White poplar is much used in making them, because it is easily worked, and makes a smooth, clean, sweet section.

The hives made in the last few years are mostly intended to take on a section-case for holding these sections. This case fits down close on top of the brood-chamber, and then the top of the hive fits on the case and becomes its top. These cases hold the sections and bring them close down to the tops of the brood-frames, leaving a passage of about three-eighths of an inch between.

Sometimes bees are a little slow about going to work in sections. They will fill the brood-chamber with honey and then swarm, refusing to store in the sections. This can usually be overcome by having one or two of the centre sections already full or partly full of honey. If you saved carefully the partly filled sections last fall you can now use them very profitably by putting one or two of them in the centre of the sections on each hive. The bees are at once attracted into the sections, and almost always will go to storing in them immediately—provided there is any honey in the fields for them to store.

It is always best to use starters in the sections. A starter is a piece of comb, or of comb-foundation, put in the section just where you want the bees to begin work. If you have nice white comb you can cut this in small pieces and fasten a piece in the centre of the top bar of each section. To fasten these comb-starters you can use a cement made of one-fourth resin and three-fourths bees-wax. Melt these together, dip the edge of the starter in the cement and set it quickly where you want it. The cement cools rapidly and holds the starter firmly.

Of later years nearly all producers of comb honey are using starters of comb foundations in the sections. For

this purpose very thin foundation is used. A very small piece of the foundation will do, but if it nearly fills the section, so much the better. This foundation starter can be fastened in the centre of each section by carefully pressing the edge of it down on the centre of the top-piece with a knife. Where many bees are kept this process is rather slow, and a small foundation-fastener is used that does the work quickly and well.

As fast as sections in the centre are filled with honey and sealed it is a good plan to remove them, moving the partly filled ones to the centre, and putting empty sections with starters at the outside.—O. Clute (*Philadelphia Press*).

BROTHER JONATHAN.

[1158.] It would seem from the Jottings of 'Amateur Expert,' culled from the *American Apiculturist*, that there is as much diversity of opinion amongst our American cousins as amongst ourselves regarding the royal road to success in bee-culture, and I do not think any of them can give us much start in the race for honey; indeed, were we to exchange places, *i.e.* take our bees to their climate and pasturage, and let them bring theirs to ours, I almost dare stake a dollar on ours.

I see one or two of them put a partly built-out section of the previous year to entice the bees into the racks of sections. This is a plan I have adopted for the last few years and find it very successful. If I have plenty I put one in each corner of the rack, and if they contain any honey I uncap it and it quickly fetches the bees up. A partly filled section of heather honey is so powerfully scented the bees cannot resist such a bait, and they rush up at once.

I notice Mr. Manum tiers a large number of sections on a hive at one time; this is, in my opinion, a retrograde plan. I have tried it and don't think I shall soon do so again, after seeing the state of the sections. What with the heat of the hive and the constant travelling of the bees over the lower sections, to say nothing of the propolis, they are so discoloured as to be nearly unsaleable; besides, where is the advantage? Bees don't like travelling over sealed honey so much, and the lower racks being filled and sealed nothing is to be gained by leaving them on the hives, and the plan necessitates a large outlay in racks.

On the other hand, Dr. Miller removes the middle sections as soon as sealed. This is bad policy; I think it upsets the bees and the breaking up of the cluster, when comb-building is decidedly a backward movement, besides the loss of time incident to such frequent manipulation. I find nothing better than the plan advocated by the writer of 'Useful Hints' in the *Journal*, viz. to give a rack beneath when the first one is about half finished. I never have more than three racks on a hive at once and seldom more than two, and I may add seldom less. I see our cousins use full sheets of foundation in supers. No doubt the sections are more quickly filled by this mode, but those who adopt it in this country must remember that American super foundation is very much thinner than our English is, and the latter leaves too thick a midrib for some people when used in full sheets, and is expensive too.

So Mr. Cowan is off across the little pond! We all wish him a pleasant trip and safe return.—F. Boyes, *Beverley, July* 12.

QUEENS IN SECTION CASES.

[1159.] Thrice within the last few days I have found a queen in the *upper* row of sections whilst taking honey. I carry away the section cases to a distance from the hive, and shake or brush off the bees into a straw skep; and afterwards throw the bees down in front of the hive. I did not use smoke or carbolic cloth in these cases, and never do unless the stock is very savage. I think it is advisable to warn bee-keepers of the risk they run of loss of queen. I suppose the queen was seeking in vain for cells in which to lay eggs. I believe one of the queens was a young one running away for refuge, as after I put her back in the hive I found two dead ones in front next day just like her. Still I believe my experience proves there is some risk in the method of taking honey.—L. Williams, *Wheatley, Oxon, July* 13*th*.

[With regard to your inquiry as to the minimum wholesale price of honey, we have heard that bee-keepers have offered 1-lb. sections at 7*s*. per dozen.—Ed.]

HONEY ASSOCIATIONS.

[1160.] 'Looker-on' runs full tilt at our Bee-keepers' Associations in his letter of July 7th, and some of his points hit the mark. The manipulations in bee-tents, for instance, are now, I think, of but little value in advancing the cause, for the really practical manipulations of modern bee-keeping cannot be shown there, and the class it is most desirable to get at—old-style apiarians—seldom attend. In our county we have, during the present and past seasons, done some useful work by means of private demonstrations held in the garden of some enthusiastic member. Six in the evening is the time selected, and in each case a thoroughly representative audience of working people have been drawn together. A screen is put up in the most suitable place, either round the hives or perhaps on a lawn. Anything which happens to be required to be done to the hives is taken as the basis of an informal lecture—perhaps supers want taking off and replacing; perhaps a swarm requires more room; and if a hive has recently swarmed the ripe, or newly vacated queen-cells, are always objects of interest. It is also well to extract from a few combs, and, in fact, there is far more scope for showing practical work than at a show. The most essential point is that the gathering be held during the long evenings and during the honey-flow.

Perhaps 'Looker-on' will explain how an Association spends its money in hunting up new members; I find no funds are spent in that direction, but in organizing shows and in sending the expert round to members who apply for his services. I see, too, that whenever an Association finds that the bee-tent ceases to pay its way they gradually give up its use. The statement, also, that very little is expended on the cottager, is, in my opinion, utterly unfounded; for these members, with their visit from expert, prizes at local shows, and perhaps loan of *Bee Journal*, certainly cost more than the 2*s*. 6*d*. per annum which they contribute, and my experience is that as soon as the average cottager ceases to draw his full money's worth out of the Association he does not resign, but stops paying.

I am afraid that the efforts made by some Associations to promote the sale of honey are somewhat amateur and feeble. Honey, like any other commercial product, can only be pushed on the market by some business means; and the formation of a central depôt to which each member can send his honey is quite useless, unless the manager of such a depôt has means of disposing of the honey through the ordinary retail channels—grocers and others. It is very certain that the public will not flock to purchase at any depôt.

The other method of selling honey is through the means adopted by Lincolnshire, Herefordshire, and perhaps some other Associations, viz., an annual honey fair, held on market-day in a good business town. This means has in every case been fairly successful, and draws general attention to the important subject of 'Honey as Food;' but the advertising must be thorough and the selling arrangements business-like and complete, not the bazaar and flower-show-style of thing at all. A good proportion of the honey should be in bulk to be weighed out into purchaser's jars at moderate prices, and the public should be advised of this beforehand.—Alfred Watkins, *Hon. Sec., Herefordshire B. K. A.*

QUEEN-REARING.

[1161.] I note that in two instances in the last issue (July 14th) of this *Journal* advice is given as to rearing queens; and in both instances—notably the American extract—it has been advised to raise the same in nuclei. This is a very grave mistake. Bear it well in mind, all who wish to raise strong, healthy, and vigorous queens, that it is absolutely imperative that the larva should be fed in full colonies, in which there are plenty of young (nurse) bees. When the cell is sealed over then they may be transferred to nuclei. It is principally in the rearing, *i.e.* feeding, that the vigour of the future mother is implanted. Place a queen-cell with a larva but recently hatched in a nucleus, and you obtain a second, maybe a third-rate queen; but allow this to be fully fed in a full colony and then transferred, the same egg would produce one both vigorous and healthy. Remember that in dividing a stock and putting these divisions, or nuclei, in different positions, fully one third of the bees will return to the original stock and frequently more than one half. You thus have quite a depopulated nucleus to rear that which it is our greatest desire to bring up strong and healthy. There is plenty of time, eight days between the sealing over of the cell and emerging of the queen, to form nuclei; do not form these on any account until the cell is sealed over and turning dark in colour. This is very perceptible when the larva is getting nearly fully developed; when it is in this condition a little rough usage will not cause any damage. I have carried such cells out of the hive two or three miles without injuring them in the least. The cells are then in the same condition as if reared and matured in full colonies.

I am quite sure our old friend 'A. E.' will pardon my calling attention to this fact, of which I know he is quite cognisant. I am rather of opinion that it was a slip of the pen or memory to advise transferring the queen-cell five days after formation, as in the case of a cell being formed over an egg the larva would have but recently hatched. I will find yet another fault; do not leave it so long as fourteen days, making nineteen in all, before you look to see if the virgin queen has come forth, as perhaps she may have been reared from a two or three day-old larva. This would make its age twenty-two days, and instead of finding a virgin it would most likely be a matron, which in the event of your wishing to mate with a selected drone would be rather disappointing.

I will venture a little advice as to the manner of rearing the queens as 'A. E.' advises, where most of the queens will be of one age—and this is quite a desideratum. Place a nice new comb in the centre of the hive before removal of the queen. Look at in three days; if eggs have been deposited cut two or three oblong holes right through the comb and among the eggs, these holes to be quite an inch deep. Now take a match and with its rounded end twist this in every other cell along the row on top of the holes cut; this destroys the eggs in these cells operated upon; then so destroy every egg in the corresponding row on the opposite side of comb; then replace this comb and remove the queen. Bees always prefer to build queen-cells on new combs, they also prefer a position such as is offered them at the top of each of these holes. You will find on looking at this comb in nine days after that you have a nice row of queen-cells in just the right condition for transferring and also both easy and safe to remove to nuclei.

Do not bother about cutting your combs to insert these cells, but just shift the frames in your nuclei a little bit apart, and place the queen-cell between the top bars of the frames, securing it there by passing a narrow strip of tin flatways, right through the piece of comb attached to the queen-cell and allow this to rest on the two top bars of the frames, press the frames together just to steady the cell, but be sure and not squeeze the cell itself; in about two hours the bees will have fixed the cell quite firmly in this position. By these means you can easily see whether it is hatched out at any moment by simply turning up the quilt.—W. B. Webster.

KILLICK'S WAX-EXTRACTOR.

[1162.] The article on 'Beeswax and its Conversion into Money' on page 296 of *B.B.J.* induces me to say that I have just been giving Killick's wax-extractor a thorough trial, and find it the cleanest and simplest contrivance possible, and the wax as it runs out is fit for exhibition without any second heating or scraping. I tested it with some *very* old comb containing stale bee-bread, also with new comb. I am sure it will be a great boon to all who desire to economise time and money. I have on two or three occasions done some fair work with the *sun* wax melter, but you must be continually looking at it to replenish, and if a cloud comes over, work ceases.—W. E. Burkitt, *Hon. Sec. and Expert Wilts B.K.A.*

Echoes from the Hives.

Summerhill, Aberdeen, N.B., July 11th.—All my stocks are doing remarkably well this season. One fills four storeys of ten frames each, another nineteen frames and three crates of fourteen 2-lb. sections, while others are nearly as good. I had a swarm weighing over five lbs. on June 15 (early for this northern part), which is now crowding two crates of 1-lb. sections. I have not taken off any sections yet, but a good many are just ready.—A. Cadenhead.

Kilmington, Axminster, July 12th.—We certainly have had a splendid honey season throughout the month of June. The bees have done splendidly. I have taken off forty-six sections from one of Neighbours' bar-frame hive, and have taken six bell-glasses from Neighbours' cottage straw-hive. I have nineteen hives of different sorts, which, I am pleased to say, are full of honey that was gathered in the month of June. All through the month of May it was very cold so as to keep the bees from gathering, so I stimulated them by feeding; consequently they were strong by the time the warm weather came. There are about 120 stocks of bees in this neighbourhood, chiefly straw skeps, which are very strong. I have just been to a person to try and get her to let me drive them for her instead of burning them; but I have not succeeded in doing so, as she seems to think burning them the best plan. I think it will be a good day when such bee-keepers have their blind eyes open; if they were to take up the *Bee Journal*, which I advise every one to do, they would see the advantage of modern bee-keeping over ancient, and which gives us every information needed. —J. W. Sanders.

Chippenham, July 18th.—Not seen a wasp at present. Flies considered unusually numerous, sale of fly-papers much beyond average.—Q. E. D.

Evesham, July 18th.—Since June 1st we have had glorious weather, and bees have been hard at work. The 'Garden of England' has literally been flowing with honey, and one hears all round of supers and sections filled very rapidly and frames in the hives full from top to bottom. Swarms, as a rule, have not been very prevalent, the bees being almost completely overwhelmed by the honey-glut and able to think of nothing else. We have suffered very much the last fortnight from the heat and want of rain, and there are no flowers in bloom now, and though we have had some soft refreshing showers the last few days honey gathering is practically at an end. In this district the Jubilee year will be remembered as one of the best we have had for a long time, and if the season has been short the honey is of most excellent quality and great in quantity. — A. H. Martin.

'*Excelsior Apiary*,' *Cheltenham, July 18th.*—Doubtless, at least for this district, the 'honey-flow' of '87 is over. It has ceased equally as suddenly as it began. For five weeks the sun has shone gloriously, and for that period our little

pets have wrought nobly and well. I suppose the white clover has really been the only harvest here, and from this source some beautiful honey has been gained, but even this has been much limited by the extreme heat and extended drought. Our last hope was the 'limes,' but these, from the above cause, have been the most utter failure that I ever remember, countless numbers of the blooms having never opened, and those which did only to wither in the effort. Still, 'big stocks' have done well, and had the limes yielded would have done grandly. I have taken 2 cwt. up to the present time in sections, and have now over 300 on, nearly the whole of which, a few fine days with a flow, would complete, beyond which many frames are blocked up with honey, some of which weighing 6 lbs. The rain has come, and upon the latest rows of limes in this town, which I find are still in bloom and very near to my apiary, the bees are working with a mighty roar, and my hopes rise of yet securing, for two hives at least, the expected cwt. per hive. In regard to 'Yorkshire Notes' and the question of surplus from a swarm the first year, on June 10th, from a small skep, I hived a swarm, giving one brood-comb, three empty combs, and four with starters only, from which, on July 4th, I had taken 18 lbs. in sections, and twenty-one more are now on, most of which I trust will be completed. The parent stock I divided and are both strong.—T. Fowler.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

J. Ward.—*Name of Insect.*—The insect forwarded does not belong to the order *Hymenoptera*, which includes the *Apidæ*, or bee family; we are not much interested in the *Diptera*, to which your specimen belongs. We have, however, much pleasure in informing you that its specific name is *Tabanus borinus* (the large Gadfly); it lives by sucking the blood of horses, oxen, and other animals. It is more common on the Continent than in Britain; and rarer in Scotland than in England. For further particulars, consult Walker's *British Diptera*, vol. i. p. 175. An illustration of the *T. borinus* and larva will be found in Chambers' *Cyclopædia*.

James Ball.—*Sample Foundation.*—The sample sent is of very fair quality, its melting point being 144° Fahr. Pure bees-wax melts at 146° Fahr.—a variation of two degrees is of small moment with super foundation. It is made from bleached wax. This white-coloured foundation is coming much into vogue. It being white gives it a much thinner appearance than if made with unbleached wax. Although, at the same time, it may be thicker, the flat-bottom also adds to its thin appearance; but, according to our experience, bees work upon a natural-shaped base a great deal better. Pure bees-wax (white) cannot be obtained without bleaching.

J. Sanders'—1. *Ripe Honey.*—Honey is ripe when sealed over. Flavour is not a criterion. As to ripeness, unripe honey is thin, and will ferment very soon after removal from hive; especially in warm weather. 2. *Time for Driving from Skeps.*—If you mean for the purpose of removing the honey, as soon after the cessation of the honey-flow in your district as possible.

C. A. J.—1. *Queen joining Swarm.*—The queen does not lead the swarm, as supposed by many inexperienced bee-keepers, but joins it when on the wing; the swarm commences to settle and then the queen settles with them. In your case she evidently was one of the last to do so. 2. *Queen-cells and Drone hatching from same.*—The large number of queen-cells is very unusual, if your bees are English. A queen (?) cell with drone inside is always abnormally formed; not only as to its surface, but also as to its position on the comb. We have opened numberless such cells, the drone being invariably dead. How long was it from the time you cut out the cell until the drone hatched out? 3. *Giving Bees Salt.*—Salt cannot possibly make your bees savage, as if you do not give it them they will get it elsewhere. Our bees are always regaled with several saucers of salt and water. They do not chase us round the apiary. Bee-keepers who keep their bees near the sea do not, as a rule, have to scamper round their garden whenever they go into it. 4. *Queen mating.*—We do not consider your argument sufficiently cogent to prove the possibility of fertilisation of queens in confinement. This, which has often been attempted, has hitherto presented difficulties which appear to be insuperable. For many reasons, which we cannot mention in this short reply, we believe that the fertilisation in mid-air is the more satisfactory, and therefore more desirable.

A. M.—*Sections fastened to Separators.*—Is your hive perfectly level? This sometimes causes it. Did you put any starters in your sections? this would be another cause, if omitted. Always have your separators perfectly clean and free from pieces of wax. If separators have any wax sticking on then the bees are very likely to fasten their combs to them. Zinc separators are the least likely to have the sections affixed to them.

J. C. I.—*Honey with Taste of Prussic Acid* (see p. 303).—Diluted prussic acid has the odour and taste of peach-blossom and bitter almond. At Ipswich a few years ago I was told by a clergyman (a bee-keeper who had a peach-house), that he dared not let his children eat the early honey because it had so strong a *taste* of prussic acid.—J. Lawson Lisson.

Hydro.—1. *Removing Hives to Heather.*—Great care should be taken in fixing the frames, otherwise there is danger in their breaking. Directions will be found in previous numbers as to the best method of fixing frames. 2. *Extracting Heather.*—Heather-honey may be extracted with ease when first gathered, but in a few days it settles into a solid jelly, which cannot be extracted by an ordinary extractor. The comb should be cut into cubes, placed in a conical bag, and exposed to the heat of a fire, when the honey will exude.

T. Fisher.—*Orret Oil.*—We have not been able, from British sources of information, to obtain any knowledge of this oil. Probably it is a local designation. We will endeavour to ascertain particulars of it from Canada.

A Constant Subscriber.—*Fertile Worker.*—The most expert bee-keeper cannot always restrain the swarming impulse in bees; and we are not surprised at your inability to effect this. We are inclined to think that the young queen has been lost in her matrimonial flight, and that, 'from the excessive number of drones and drone-cells,' a fertile worker is at present in your hive.

T. D. J.—1. *Uniting.*—There would be no danger in driving and uniting the bees at the time mentioned, taking the precaution to see at the time of the operation that both the stocks are gorged with scented syrup. 2. *Close of Honey Harvest.*—No general rule can be given as to the time when the honey glut will be over; but in most districts this year, where there is no heather, the harvest will be over before August. In many parts the harvest is over already. 3. *Third-class Certificate.*—There is no difficulty in obtaining this certificate. It is necessary for the candidate to prove to the judges that he has a fair knowledge of bees and an ability to manipulate. The second and first are more difficult, and require some acquaintance with the literature of apiculture. The place and time of examination are arranged by the secretary of the county in which the candidate resides.

S. L. B.—*Wasp.*—The name of the specimen forwarded is *Vespa Norvegica*. Our correspondent writes: 'Could you name the enclosed wasp for me?—evidently quite distinct from the common wasp. It built a paper nest in a hedge, which when I destroyed another was immediately begun and finished in a few days; but the colony was very small, I think less than twenty in all. I cannot compare the common wasp with it, for, strange to say, in this locality (Fermanagh), where usually they appear in myriads (sometimes a veritable plague), this year I have not seen one single specimen male or female!'

W. F. Askew.—The name of the 'large insect resembling a wasp' is *Sirex gigas*, or gigantic sawfly. The Sirex is an internal borer of trees; the larvæ cause much damage to fir and other trees. It is remarked that the larvæ take a very long time before they reach maturity. It belongs to the order *Hymenoptera*. See Kirby's *Entomology*, p. 121. Being a fine specimen we presented it to the Entomological Department, South Kensington.

G. T.—The bee forwarded is an *Apis Ligustica*, or Ligurian bee, with some slight modification of the usual bands.

J. M. P.—*White-headed Drones.*—The cause of this abnormal appearance is that the drones are aborted in development. Sometimes the workers, in their impatience during the glut to fill the cells with honey, will not wait for the full growth of the drones, but incontinently lug them out in all their immaturity. On p. 117 of Mr. Cheshire's work on bee-keeping will be found an account of albino drones.

Beeswing.—*Queen-rearing.*—Consult 'Useful Hints' on this subject in this issue.

Novice.—1. *Combs fixed together.*—Remove both frames at once and divide the combs with a knife, and turn the frames round so that the same two surfaces are not opposite to each other. Any time of the day will do. 2 and 3. *Transferring.*—Drive the bees as you propose, cut or break out the combs from the skeps and tie each into a frame, being careful not to injure the brood. The outside combs being built of drone cells should not be transferred. Having tied the combs into the frames and placed them in the bar-frame hive, turn the bees among them, and place the quilts over them. When the time arrives for reducing for the winter, remove such frames as are not covered by the bees.

Received from Mr. John Walton, Honey Cott, Leamington, a section of honey. We found it of excellent quality and flavour and delicious in taste. Such honey ought to fetch a good price in the market.

Show Announcements.

Giving Name and Address of Secretary, Date and Place of Show, Date of Closing Entries. Terms: Three Insertions and under, Two Shillings and Sixpence; additional insertions, Sixpence each. No charge made to Associations whose Shows are announced in our general Advertising Columns.

July 26–28.—Gloucestershire Agricultural Show at Cheltenham. W. D. Slade, Sec.

July 26, 27.—Warwick Agricultural Society at Sutton Coldfield. J. N. Bower, Secretary.

July 27.—Bishops Waltham Show. (Hants and Isle of Wight Association.) H. W. West, Hon. Sec., Swanmore House, Bishops Waltham.

July 27.—Kent Association at Ashford, Kent. Hon. Sec., J. Garratt, Hockenden, St. Mary Cray, Kent.

August 3–5.—Yorkshire Agricultural Society at York. Secretary, H. L. Rickards, Poole, near Leeds.

August 11.—Taunton Flower Show, at Vivary Park, Taunton, Somerset. Entries close August 8. Hon. Sec., W. B. Maynard, 5 Hamnet Street, Taunton.

August 12.—Maer Fête and Honey Show. Entries close August 5. John R. Critchlow, Hon. Sec., Maer Farm, Newcastle, Staffs.

August 9, 10.—Irish Bee-keepers' Association at Salthill Gardens, near Dublin. Entries close August 2. Hon. Sec., Henry Chenevix, Blackrock, Dublin.

August 14.—Handbridge, Chester St. Mary's Horticultural Show. W. E. Little, Hon. Secretary, Eastgate Row, Chester.

August 24.—Lancaster Agricultural Show. W. Liddell, Hon. Secretary, Dale Street, Lancaster.

August 31–Sept. 3.—Royal Manchester and Liverpool Agricultural Show at Manchester. W. Lees McClure, Hon. Secretary, The Lathoms, Prescot, Lancashire.

Business Directory.

For the use of Manufacturers and Purchasers of Bee-keeping Appliances.

The Name and Address and Business of any Manufacturer will be inserted in this List, under one heading, for One Pound per annum. Additional headings, Five Shillings extra. Advertisers in 'The Bee Journal,' whose orders amount to Five Pounds per annum, will be inserted Free.

HIVES AND OTHER APPLIANCES.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
Appleton, H. M., 256A Hotwell Road, Bristol.
Baker, W. B., Muskham, Newark.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
British Bee-keepers' Stores, 23 Cornhill, E.C.
Burtt, E. J., Stroud Road, Gloucester.
Edey & Son, St. Neots.
Howard, J. H., Holme, Peterborough.
Hutchings, A. F., St. Mary Cray, Kent.
Meadham, M., Huntington, Hereford.
Meadows, W. P., Syston, Leicester.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
Stothard, G., Welwyn, Herts.
Webster, W. B., Wokingham.
Woodley, A. D., 26 Donnington Road, Reading.
Wren & Son, 139 High Street, Lowestoft.

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Abbott Bros., Southall, and Merchants' Quay, Dublin.
Baker, W. B., Muskham, Newark.
Baldwin, S. J., Bromley, Kent.
British Bee-keepers' Stores, 23 Cornhill, E.C.
British Honey Co., Limited, 17 King William St., Strand.
Edey & Sons, St. Neots.
Howard, J. H., Holme, Peterborough.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.

FOREIGN BEES AND QUEENS.

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Blow, T. B., Welwyn, Herts.
Benton, F., Munich, Germany
Edey & Sons, St. Neots.
Howard, J. H., Holme, Peterborough.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
Simmins, S., Rottingdean, near Brighton.

METAL ENDS.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
Baker, W. B., Muskham, Newark.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
British Bee-keepers' Stores, 23 Cornhill, E.C.
Edey & Sons, St. Neots.
Lyon, F., 94 Harleyford Road, London, S.E.
Meadows, W. P., Syston, Leicester.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.

COMB FOUNDATION.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
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Blow, T. B., Welwyn, Herts.
British Bee-keepers' Stores, 23 Cornhill, E.C.
Edey & Sons, St. Neots.
Howard, J. H., Holme, Peterborough.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
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THE BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, Cambridge Circus, W.C.'

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Editorial, Notices, &c.

QUEEN VICTORIA'S TRAIN AND THE BEES.

We published in a recent number a story taken from a Westmoreland paper relating to the alleged stoppage of the Royal train on Her Majesty's last journey from Balmoral. It was said that a swarm of bees, by getting into a signal-lamp, had extinguished the light, and had thus obliged the driver of the Queen's train to pull up to inquire the reason that no light was showing. We had our misgivings about the entire correctness of the incident, and finding that other bee-keepers were similarly exercised in their minds, we determined to get information of an unimpeachable kind with regard to the facts of the case. We, therefore, wrote to the signalman in charge of the lamp which has become so famous, and we have received from him a full reply. We are now consequently in a position to furnish our readers with a true and particular account of what did take place.

The *locale* of our story is Hincaster Junction, near Milnthorpe, Westmoreland. The lamp-posts on the line are fitted, it seems, with cases to receive the signal-lights. These cases have lids, in which, for letting out the heated air, are holes from half an inch to an inch in diameter. Through these holes a swarm of bees did find their way into the lamp-*case* at Hincaster Junction. The lamp was put into its position at 11.30 p.m. on the night of Her Majesty's last journey from Balmoral to Windsor, and with such force as to shake the bees down in sufficient numbers to close the ventilating holes and thus put out the light. The astonished signalman was unable to rekindle the lamp owing to its novel occupants, and he left the swarm until the following night, when he took an old straw-hive, the inside of which had been treated with syrup or some sweet liquid, and placed it on the top of the lamp-case. The bees gladly accepted the proffered home, so much more comfortable than the strange abode they had selected. They were again left undisturbed for twenty-four hours, when the signalman carried the hive down the post, a distance of fifty feet, to the ground. Having reached *terra firma* he wrapped a cloth round the hive-bottom and conveyed the swarm to his garden half-a-mile away, where, he says, 'they are doing well and appear content with their new home.'

A further point of interest, and one that clears up some difficulties which had occurred to us, is that the lamp in question is only lighted on special occasions during the period from March to August each year, as it is connected with simply a 'day-signal box.' It is not easy, therefore, to decide the exact date when the bees settled on the post; but as combs had been begun it is certain some time—probably half-a-day—had passed before their first discovery. Any way, the story of the swarm having been attracted by the light of the lamp, and so flying at night, is effectually disposed of by the facts narrated. Moreover, Her Majesty's train was *not* stopped, *nor her journey in any way interfered with*, by the strange vagary of a scout choosing so extraordinary a place for a settlement as the lamp-case on the top of a railway signal-post. It is certain that from time to time these scouts surprise us by 'the unexpected,' and show that they will not be treated or represented as if 'unconscious automata.' Their manifestations of *will* and *wilfulness* occasionally become annoying enough to apiarians, but we are sincerely glad to find that the vagary of the Westmoreland leader or ruler of the swarm did not, as was reported, cause any discomfort, or even a momentary delay, to our gracious Sovereign Lady as she journeyed from her northern to her southern home. Had any such inconvenience occurred it would have been an unworthy requital on the part of the bees for the interest that some members of the Royal Family take in apiculture.

We wish the Hincaster Junction signalman all success with his swarm which has attained such wide-spread notoriety, but we hope he will instal the colony in a bar-frame hive, and, discarding the 'old straw hive,' will become an enthusiastic bee-keeper using modern methods. We give him hearty thanks for enabling us to put the facts of this curious case distinctly and truthfully before our readers.

MANCHESTER EXHIBITION.

We beg to call the attention of exhibitors to the fact that the entries for the Manchester Exhibition close on August 1st. Liberal prizes are offered. The Bee Department is under the management of the Lancashire and Cheshire Association. We feel sure a good entry will be made.

ASSOCIATIONS.

BRITISH BEE-KEEPERS' ASSOCIATION.

Committee Meeting, held at 105 Jermyn Street, on Wednesday, July 20th. Present: the Hon. and Rev. H. Bligh in the chair, the Rev. Dr. Bartrum, Revs. F. G. Jenyns, G. Oddie, and F. S. Sclater, Captain Bush, Captain Campbell, J. M. Hooker, and the Secretary. A letter was read from the Treasurer regretting his inability to be present. Correspondence was read from Mr. T. Bonner Chambers respecting the appointment of an examiner to attend the Tref Eglwys Exhibition. The Secretary was requested to inform Mr. Chambers that the application must come through the Secretary of the Montgomery Association, in accordance with the rules of affiliation.

Judges were appointed for the following country shows, viz.: on July 26 at St. Ives (Herts), and Cheltenham (Gloucester); on July 27th, at Bishops Waltham (Hants), and Ashford (Kent); on July 28th, Ashby-de-la-Zouch (Leicester); on August 16th, Salisbury; August 18th, Aberdare.

A report was read from Mr. W. B. Webster respecting his course of lectures and visits to bee-keepers on behalf of the Association in the County of Northumberland. Resolved that the best thanks of the Committee be given to Mr. Webster for his report and services. The Secretary reported what steps had been taken by the residents of Northumberland to form an association for that county.

It was resolved that the prize list for the bee department of the Royal Agricultural Show of 1888 be considered at the next meeting.

Quarterly Meeting of County Representatives held at the close of the above Committee Meeting. Present: W. de Lacy Ahern (Surrey), Mrs. Curry and W. B. Webster (Berks), W. Rushton (Beds), Rev. W. E. Burkitt (Wilts), Jesse Garratt (Kent), F. H. Meggy (Essex), — King (Bucks).

The minutes of the last Quarterly Conference were read and confirmed. The Secretary reported that the rules for the management of country shows had been further considered in accordance with the resolution of the last Quarterly Conference and had since been issued to each County Secretary.

The advisability of the British Bee-keepers' Association offering prizes for honey at county shows, open to members of the B. B. K. A. only, was fully discussed. On the motion of Mr. Webster, seconded by the Rev. W. E. Burkitt, it was unanimously resolved, 'That this meeting of County Representatives fully approves of the proposal of the B. B. K. A. to offer prizes, open to its members, at the county exhibitions.' Mr. Garratt supported the motion, as tending to identify the counties more with the central Society, and at the same time giving additional attractions to the county shows.

Mr. Rushton reported that, with the consent of H.M. Inspector of Schools, the subject of bee-keeping had been taught in their night-school during the past winter. The scheme as arranged was intended to extend over three years. The examination subsequently took place at the end of the term. A good proportion of the schools passed the examination. The grant earned amounted to nearly 2*l*. The Educational Department had since repudiated the arrangement and refused the amount of grant earned.

Mr. Rushton was requested to send full particulars to the Secretary of the B. B. K. A., in order that the central Society might be enabled to take the matter up.

Mr. Meggy raised the question as to the advisability of making it compulsory for the 'queen' to be caught in 'driving competitions,' the general opinion of the meeting being that it was not advisable to alter the rule in this respect.

The Quarterly Conversazione of the Association was held at 6 p.m., when among the audience assembled were the following members and county representatives:—Mrs. Curry, Mr. Hooker, Mr. Garratt, the Rev. Mr. Burkitt, Mr. Bunbury, Captain Campbell, Mr. Lyon, Mr. Grimshaw, Mr. Henderson, Mr. Meggy, Mr. Webster, and Mr. Daintree.

Mr. Bunbury (Suffolk) having been voted to the chair, called upon Mr. Grimshaw to read the paper he had written on

The Visual Organs of Bees.

The worker-bee has about 12,000 eyes, the drone more than twice that number, and the queen only some ten thousand (quite plenty, one would think), but, as we know, all three kinds possess the three large simple eyes—*stemmata* or *ocelli*—fixed quite in the central line of the head; those of the drone being on what we may term the *forehead* of the bee, whilst the simple eyes of the female are on the top of the head. Observation, in addition to anatomical structure, tells us that the bee has a vast range of vision, and that this must be of a telescopic nature goes without saying when we consider that she has to discern minute specks of colour at what (remembering the small comparative size of the insect) must be called immense distances; the flower on its part making these specks easiest to be seen by using as a colour-bait the attractive and somewhat gaudy primaries —red, blue, and yellow, most frequently.

Each of these myriad eyes serves as a minute long or short range telescope, according to its position on the curved eye-mass, the longer distances being taken by those nearer the centre, and the shorter by the separate eyes near the margin. The bee thus gets an accurate picture of the country extending in a semicircle before it, but in all probability appearing like a flat wall; that is, without perspective. The circle of its vision may be represented by a circumference of twelve miles, or two miles in every direction.

At this range any bright speck of colour is a bid of wages, which, in the majority of instances will be paid for services rendered by the bee, the flower doing its utmost to attract its attention by using, as I said, most frequently, the glaring primary colours. Large flowers are single and solitary, whilst small ones are massed together by the plant into a head, a spike, or an umbel. These conglomerations of small flowers are again massed together by the hand of nature into sheets of bloom, of which mountain thyme, the sages and saxifrages of the Alps, or the purple heather of the moors, are familiar examples; and, so that there shall be little chance of the bee *not* seeing them, the most telling background or setting is used in nature's colour-grouping—red is set in green, blue in orange, yellow in purple, and *vice versâ*.

Green, orange, and purple set each other off, as do russets, grays, and browns. All for a purpose, and nothing without a purpose. Thus, so far as the bee is concerned, colour is for the eye, and the eye for colour. So, we may say, the telescopic eyes of the bee are intended and used for little else than as *first guides* to flowers. On approaching a flower, now come into play the guides to its contents—scented nectar—these are the organs of smell, situated, as we are told, in the antennæ; and these organs discriminate which flowers ought or ought not to be visited, for many of the colour-baits prove 'a vain delusion and a snare.' These perfume-guides are an infallible means of detecting bee-food, for where there is not nectar there is pollen; besides we must not conclude when we see bees paying visits to flowers which are to us odourless that they are nectarless, and that consequently the bee's search is fruitless, for nectar and perfume exist in minute quantities far beyond our discernment. Fortunately, or unfortunately, for us our sense of smell is by comparison a very coarse and untrustworthy affair.

I think that before a bee alights on a flower its compound eyes become useless, that is, superseded, and during its search in the flower-folds they are protected from friction and stickiness by the countless hairs serving as eye-buffers, the antennæ and tongue doing all the searching and gathering. Indeed, these telescopic eyes *must* be useless at such very close quarters, or they would be provided with an adaptable focussing arrangement somewhat similar to our own. They are admirable for their purpose, and when that fails some other power takes up and continues the sense chain, notably, touch and smell, these being intensified at short ranges in the same measure as the vision of the compound eye falls short. What, then, is the use of the three large simple eyes, microscopic in their action? For use in the flower-depths where the hairs of the bee become bathed in sweet liquid, or in narrow flower tubes laden *nolens volens* with pollen granules? I think not. Other senses are of more service.

I will lay before you two hypotheses as suggestions of the true place occupied by these eyes in the economy of the bee. The first of these suggests them as *homing guides*. We have dazzling tints tempting the bee through its compound eyes (flower-guides); nectar appealing to the food-guides; and as there must be a guide somewhere to *dulce domum*, where shall we look for it? Let us test the return journey by the same means as the outward trip. Dazzling tints for the telescopes there are none; landmarks for the telescopes plenty; but, alas! as soon as the neighbourhood of these landmarks be reached, the next guides, the scent-discerning antennæ, totally fail, as is proved by the frequent dying of bees when with a few feet of home, the hive having been removed from its old stand. Telescopic and microscopic eyes, hearing, touch, smell, all fail the bee when its home is interfered with to the extent I name. Where is the homing power? If it be *instinct*, instinct fails a few feet from home. *Instinct* will not lead it to take advantage of hedges, houses, or drains in strong winds. If reason be its homeward guide, reason fails also a few feet from home. So also do these three eyes, as organs of visiou simply.

My first proposition is, that as the simple eyes are arranged in a triangle on the head of the bee it makes use of some superior kind of trigonometry in finding its way home, just as it uses some more intricate system of mathematics than we are acquainted with in its cell-construction. The three simple eyes are not arranged in an obtuse triangle without the angle *principle* being brought into play as a factor in its vision, for it is in accordance with the triangular principle that the two side eyes have an outward aspect and inclination whilst the lower and front eye looks forward.

From our limited knowledge let us reason from what we *do* with triangles in optics to what the bee *may do*. By a system of triangles, aided by telescopes (like the bee) we ascertain the distance of remote objects, the height of mountains, the distance to the earth's centre, its diameter and circumference, the form, size, and distance from us of the sun, moon, and stars. The vision through the bee's three eyes must perforce give it the bases and apex of an inverted triangle, whatever use it puts the knowledge to, thus obtained. This local triangular vision in connexion with distant telescopic vision is certainly an actual occurrence, and is in singular similitude to our own triangulations, whatever may be thought of such a coincidence. Now it is a well-known fact that upon a bee's first trip from home it circles round it a few times, then approaching and receding (without turning round) from the entrance in an almost straight line, is if taking bearings to use the stereotyped phrase. Yes, but taking bearings on what basis? Let the mariner take bearings without his angles, and his instruments as correct bases, and note the disastrous result. On the other hand, let the bee with its telescopic range note prominent objects in its range of vision, and at the same time note with its short focussed three simple eyes the position of near objects with regard to distant ones, and its way home is assured, so long as the distant landmarks are kept in view. It can return to its own garden and hive to a certainty. Remove the hive and all its local triangular calculations are disarranged. It is lost. The unerring aim of the insect for the old spot, whether its home be there or not, goes a long way to support the suggestion that its homing guide within well-known landmarks is by calculation almost entirely mathematical, and that *without* this triangular calculation all its other guides—sight, smell, hearing, and touch—fall with the bee to the ground.

My second hypothesis as to the use of the ocelli is not quite so vague in its character as the foregoing. We find the worker-bee in the deep darkness of its cell carving out with its jaws the unshapely little heaps of wax into a series of triangles of almost mathematical exactness. Well, darkness is only a *comparative* term—absolute darkness we can scarcely obtain. The skull-like framework in which these eyes are set is so waved or convoluted that the two upper eyes are directed outwards and the lower one forward, this triangular outlook being further secured by an arrangement of hairs which prevent the eyes seeing in any other direction. We have next the wedge-shaped head of the bee, apex downwards, and from the centre of the cell-base we have a series of wedge-shaped results in wax, one triangle being from the middle of two walls to the centre (this gives us the cell-floor) and another from the corners of the cell-walls to the centre (thus we get the wall). As the bee works upon the plastic wax it supports itself by its six legs on six rudimentary cell-walls and gnaws away the superabundant wax from the circular to the angular form, its guide in this operation being probably, first, the immoveable staring simple eyes, fixing the triangles, next the highly sensitive tactile antennæ, and, finally, for smoothing down and chiselling purposes we have the wedge-like head. As for the existence of stemmata in the queen, which does not build, a moment's reflection will show you that as the worker is but an imperfect queen, or the queen an imperfect worker (I don't care which), this point is disposed of. With regard to the drone, a little physiological reasoning will discover the necessity for their existence. I put these two theories before you more as suggestions for interesting speculation —at least so they have proved to me—than as distinct statements of proven fact, for such I fear they will never be.

Mr. Garratt did not think he could add any remarks of interest to the paper which had been so ably prepared, but would like to ask one or two questions. He did not feel quite sure whether it was intended that the meeting should regard the statements Mr. Grimshaw had made as ascertained facts, or as speculations. It seemed to him that they were speculations, and he thought towards the conclusion of the paper just read Mr. Grimshaw admitted that. He was startled at the outset to hear that bees had so large a number of eyes. Many writers on bees had fixed the number of separate eyes at 800 in each compound eye, and now it was said that instead of hundreds there were many thousands. He would like further light thrown on this matter. It seemed quite reasonable that if bees had as many eyes as stated they must serve different purposes, or nature would not have been so prodigal in designing such an organ of vision. Also with regard to the organs of smell being contained in the antennæ, he thought that statement was purely speculative. Certainly more light had been thrown on the subject by Mr. Cheshire in recent times than before, but Mr. Grimshaw had gone further than Mr. Cheshire. It occurred to him that that subject, like many others of a scientific character in relation to bees, might be taken

into consideration by the Association with the object of promoting further research and discovery. One of the aims of the institution should be to encourage experiment for the purpose of gaining increased scientific information. Many of the points touched on by Mr. Grimshaw were well worthy of further elucidation. The knowledge of the habits, instinct, and mode of working of bees was in its infancy, and he recommended that the Association should organize a system of close and methodical observation in the direction suggested.

Mr. Webster thought Mr. Grimshaw's figures respecting the number of facets in a bee's eye far more correct than Mr. Garratt's computation of 800. He had counted 100 facets in a bee's eye which occupied no more space than a pin's point, but he had no instrument fine enough to compute the number of facets in a single eye. With regard to bees building their cells hexagonally he thought the bees built the cells round in shape, and that by pressure they became hexagonal. He did not believe the triangular eyes had any influence on the building of hexagonal cells. As to bees taking points by triangles in the same way as mariners, he doubted the assertion, because bees frequently made mistakes by entering the wrong hives. They became mixed up to a considerable extent. Where two species of bees were kept like the black and Italian, dozens of the latter might often be found in the black bees' hives. On the other hand, Italians would not permit strangers in their hives.

The Chairman would like to know what colour bees had a preference for. In his garden there were large patches of yellow flowers, which were generally supposed to be bee flowers, but the bees did not appear to work on them in nearly such large force as on the mignonette.

Mr. Grimshaw said that in his remarks about colour he had excluded from consideration clover, heather, or any flowers which attracted bees by their odour. He thought it could not be questioned that the eye was intended to distinguish colours. Sir John Lubbock's experiments showed that they preferred flowers with a blue tint. He believed the object of bright colours was to tempt the bee to visit such plants, and when the bee arrived within a certain range it knew whether or not anything could be gained by an inspection of the flowers. Its telescopic vision enabled it to see these colours at a great distance. There was no doubt that both humble bees and honey bees visited flowers without finding nectar therein; and it must be taken for granted that colour was the attraction in the first instance. With regard to Mr. Webster's remarks about cells he thought if an examination of the outer edges of the comb were to be made it would be found in many instances that the cells were quite angular, where there could be no pressure. With regard to the hexagonal shape of the facets of the separate eyes of the compound eye-mass the outer walls were not hexagonal but circular; therefore it might be that the chitine in a soft condition was pressed into hexagonal form, but in its outer edges it was free to assume any shape. In reply to Mr. Garratt he could say that his (the speaker's) figures were quite within the mark when estimating the number of facets at 12,000 for a worker, upwards of 24,000 for a drone, and about 10,000 for a queen. The queen did not require so many eyes as a worker, and the drone, needing a very extended vision, had double the number of a worker. A drone flew only in fine weather and at a different altitude to other bees, and the object of its search was so rare that extraordinary powers of vision were necessary.

Mr. Meggy would like to know how far the statement was to be considered reliable that the bee had a sensation of feeling in its antennæ; and he would also like to hear a few words from Mr. Grimshaw in reply to Mr. Webster's remarks as to the failure of bees to find their right homes, probably owing to a want of sight. Mr. Cheshire's observations tended towards the belief that the antennæ were the seat of feeling. Mr. Grimshaw could perhaps say whether the Germans agreed with Mr. Cheshire's views. Possibly Ligurian bees went to other hives for the purpose of robbing, and not because they had lost their way, as Mr. Webster suggested. In an early volume of the first edition of the *Popular Educator*, published about twenty-five years ago, a statement was made on the question of Euclid as to the exactitude of the bees working in the hexagonal. The writer tried to show that the bees were not quite exact in their mathematics, but his arguments were afterwards vigorously assailed, and the bee's measurement found correct.

Mr. Grimshaw said with regard to bees not always coming back direct to their own hives, he thought one or two exceptions must not be taken as upsetting the rule. There was a saying that if a strange bee went to a hive with its honey sac full it was received with open arms. With regard to the smell organs being situated in the antennæ, experiments had been made by clipping off the antennæ of insects for the purpose of seeing whether or not the latter would find nectar. The result of such experiments was that drone, queen, worker-bee, ants, and other insects possessing antennæ, and which feed on scented substances, went wandering about in a very aimless manner after being deprived of their antennæ. In addition to that there were certain depressions on the antennæ provided with nerves, which the highest authorities argued could be put to no other purpose than that of smelling.

Mr. Webster did not know whether it was that the bees went visiting one another, or that by mistake they entered the wrong hives and were accepted for the time being because they brought supplies with them; but an examination of his stocks of black bees, night or morning, would often show more than a hundred Ligurian intruders.

Mr. Grimshaw said Mr. Webster's remarks struck at the root of one of the bee-keeper's articles of faith. They all knew that sentries were placed at the entrance to a hive day and night, which were able to detect strangers by the smell. All bee-keepers must have witnessed the conflicts which took place from time to time on the alighting board between strange visitors and the inmates of the hive.

Mr. Daintree endorsed Mr. Grimshaw's views. He frequently searched his hives, but seldom or never found an Italian bee in the wrong hive. He thought bees had a keen sense of hearing. A party of hand-bell ringers came into his district twelve months ago, and immediately they began to ring their bells, although at a long distance off, the bees flocked out of all the hives in large numbers.

Mr. Webster was of opinion that bees going to a hive to rob were stopped by the sentries not so much by a sense of smell as by the particular action of the strangers in approaching the hive. He believed that the sentries could tell the difference between a bee which had lost its way and a bee which came for the purpose of robbing. A robber bee going to a hive made a peculiar kind of hum, which was totally distinct from a bee bringing in honey.

Mr. Grimshaw said that in cases where hives had been moved in the day time, the bees belonging thereto would fly about the old stands, and frequently die from inability to find their homes instead of entering other hives. With regard to the bees' eyes, there was no doubt they were so placed for the purpose of giving triangular vision. They represented the instruments which the civil engineer used in his measurements, and combined a triangular system of optics with telescopic arrangements.

Mr. Hooker thought Mr. Grimshaw's arguments very feasible, and suggested that Mr. Webster should propound an alternative theory if he did not believe them.

Mr. Webster believed that the two sets of eyes were for seeing far and short distances, but he did not think that the bees acted on the principles of trigonometry.

Mr. Meggy thought that the ocelli were placed so as to give the triangulation, but that the compound eyes gave the short sight for use in the flower especially. From observations made in his own apiary, he believed it was very rare for bees to make a mistake and visit the wrong hive.

Mr. Grimshaw believed the bee saw objects near to it by means of the short telescopes. The telescopes varied in length, the compound eye-mass being rounded. The facets near the centre had a longer range than those at the outer edges. He did not think the bee used the three simple eyes for ordinary vision at all, because the other eyes answered the purpose admirably.

In answer to Mr. Meggy, Mr. Grimshaw said that the eye was shaped like an orange, and that if a section were taken, it would be found that some of the eyes had short tubes and others long tubes. He believed that bees saw short distances with the short tubes, and long distances with the long tubes, in the same compound eye-mass.

Mr. W. J. Green, 36 Friars Street, Sudbury, Suffolk, sent for exhibition a model of his new patent 'Imperial' Hive. This hive is a bar-frame hive, with the greater part of the bottom and all the four sides removeable, so that the brood-nest is practically in mid-air, thus affording access to frames at any part without the necessity of taking off the supering case or doubling body, which might prove of service for removing pieces of dropped comb or for requeening, and would enable the bee-keeper to remove extra queen-cells. A small hook goes with the hive for the purpose of pulling the queen-cells down. It has glass sides for summer use, so that the progress that the bees make from day to day may be noted. For winter use glass, being a conductor of heat, is taken out and wood panels inserted, which would make it a complete double walled hive all round. The entrance is, although very simple, different, as it enables it to be closed against robbing bees, but not to exclude the air. The top bar is formed in two distinct pieces, sufficiently far apart to allow foundation to be easily inserted. The glass being kept up to the top of frames any description of frames may be transferred into this hive by simply cutting ends short and gradually introducing its own frames. The bar sustaining frames will be of iron. A model of a doubling box for the above hive had also been forwarded.

Mr. Garratt said if the hive would be the means of producing more honey than any other hive, that would be its greatest recommendation; but on that point the inventor was silent.

A conversation ensued on the merits of the invention, without any unanimous opinion being expressed.

Mr. Green had also forwarded for exhibition a feeder, the idea of which occurred to him when he was transferring a lot of bees into his Imperial hive, and, desiring to feed them, he took a piece of old comb and poured some honey on it, which soon sunk into the holes; the bees went down head first into the combs. On the same principle Mr. Green had formed his feeder.

Mr. Hooker, Mr. Lyon, Mr. Webster, and Mr. Garratt commented on the contrivance, the general opinion being that the zinc would be too cold for bees in winter time, and that the invention, although ingenious, offered no advantage over systems at present in vogue.

A foundation-fixer, on the principle of Parker's, was exhibited, which Mr. Hooker disapproved, because the motion thereof was not always parallel, like the Parker foundation-fixer.

Mr. Lyon and Mr. Grimshaw used the haft of a pocket-knife, which answered the purpose, and was cheaper than any foundation-fixer.

The Rev. W. E. Burkitt exhibited a new wax-extractor, introduced by Mr. Killick, and which he had tried. He spoke in praise of the article, saying that he had never found any way of extracting wax so successfully as by means of the invention now before them.

Mr. Garratt, Mr. Lyon, Mr. Daintree, Captain Campbell, and the Chairman discussed the matter, some of them referring to other modes of extracting wax which they considered to be considered to be equally effectual as the method in question.

The Chairman moved, and Mr. Garratt seconded, a vote of thanks to Mr. Grimshaw for his valuable and interesting paper.

Mr. Grimshaw briefly thanked the audience, and said he had been amply repaid for his trouble in preparing the MS. by listening to the very interesting conversation which ensued thereon. He thought the B.B.K.A. should take some formal notice of scientific research amongst its members. The Editor of the *British Bee Journal* was, he believed, also of the same opinion, for that gentleman had written a very interesting article on scientific subjects for conversazione. They must blend practice with theory, and he hoped other members would be induced to turn their intention in a scientific direction, and communicate their observations through the medium of the *Journal* or at the quarterly meetings of the B.B.K.A. He would be happy to assist in any way practicable.

Mr. Hooker moved, and the Rev. Mr. Burkitt seconded, a vote of thanks to the Chairman, which was suitably acknowledged, and the proceedings terminated.

LINCOLNSHIRE AGRICULTURAL SHOW.

This is one of the most popular and prosperous Associations in connexion with agriculture in all England, and is celebrated for its hospitality to the judges and for the kind consideration shown to the exhibitors and general good management. This year the annual exhibition was held at Spalding, and was opened on Wednesday, the 20th, continuing during Thursday and Friday. Spalding is a nice old agricultural town. The show ground was situated on the eastern side of the town, about a quarter of a mile from it, on the Halmer road leading to Fulney and Weston. The greater part is attached to Cley House, the residence of Mr. Clarke. Seldom have we seen grounds so eminently suited for the purpose of an exhibition of this kind held during the very hottest days of this season. The fine old trees surrounding and intersecting the grounds (about seventeen acres) seemed almost as if they had been planted for the purpose of affording shade from the scorching sun, and adding picturesqueness and beauty to the occasion. The town and the whole length of the streets and roads from the station to the show grounds gave evidence of the liberality and good taste of the people of Spalding, and their hearty desire to welcome the Lincolnshire Agricultural Society. Venetian masts were placed at short distances from each other on both sides of the roads, and a continuous line of bright and various coloured pennons stretched from pole to pole. The whole effect was very good indeed. The refreshing breeze assisted in showing the decorations off to the best advantage.

Passing through the turnstiles, by the implements in motion and under some trees into a second open space, the visitor has on his left under the trees in a prominent position the shed in which the exhibition of bee appliances, honey, &c., is placed; on one side of this is the bee tent and in a lean-to building on the other side are observatory hives with the different races of bees with their queens. In the classes for bees there were seventeen entries, in which Ligurians, Carniolans, Syrians, and blacks, were fairly represented. In honey in the various classes there were forty-two entries, the greater part being of very good quality. In Class 4, for the largest exhibi-

tion of extracted honey, Mr. J. R. Truss, of Bainton Heath, Stamford, obtained first prize with 527 lbs., and Mr. Robert Thorpe, of Swineshead, near Boston, the second prize with 395 lbs., both exhibits being of good quality. The section honey was fairly good, but not such as we sometimes see. In the class for appliances there were thirty-five entries. The hives were an average class, there being no new features that require noting. The same may be said of the supers. The Raynor Extractor exhibited by Mr. Meadows is considerably improved since it obtained the first prize last year. It was far in advance of the other exhibits and well deserved the first prize which was awarded it. The most complete collection of hives, &c., is still part of the schedule here, but we trust this may give place to more useful classes, as at Newcastle and Bury St. Edmunds.

The following is the list of awards:—

Bees.—I. For the best specimens of Ligurian honey-bees, to be exhibited with the queen in an Observatory hive—1, W. B. Baker, North Muskham, Newark; 2, R. Thorpe, Swineshead, Boston; 3, C. M. Hufton, Cowbit, Spalding. II. For the best specimens of Carniolan, Cyprian, or Syrian honey-bees, to be exhibited with the queen in an Observatory hive—1, W. Edey & Son, St. Neots, Hunts; 2, S. J. Baldwin, Bromley, Kent; 3, C. M. Hufton. III. For the best specimens of Old English honey-bees, to be exhibited with the queen in an Observatory hive—1, F. W. Riggall, The Grange, Gayton-le-Wold, Louth; 2, H. O. Smith, Louth; 3, W. B. Baker.

Honey.—IV. For the largest and best exhibition of extracted or run honey in glass jars, computed to contain one or two pounds net weight of honey respectively, the produce of one apiary during the year 1887—1, J. R. Truss, Bainton Heath, Stamford (527 lbs.); 2, R. Thorpe (395 lbs.). V. For the best twenty-four 1-lb. sections of comb honey, in crate—1, F. W. Riggall; 2, W. Sells, Uffington, Stamford; 3, Lydia Brown, Whaplode, Spalding. VI. For the best twelve 1-lb. sections of comb honey, in crate—1, W. Sells; 2, H. O. Smith; 3, Amy Hanson, Whaplode, Spalding. VII. For the best twelve 1-lb. glass jars of extracted or run honey—1, J. R. Truss; 2, F. W. Riggall; 3, W. C. Brown, Appleby, Doncaster. VIII. For the best glass super of comb honey- 1, W. Sells; 2, W. Emington, Alford Street, Grantham; 3, W. Sells. IX. For the best super of any other description of comb honey—1, E. Brown, Spalding.

Hives, &c.—X. For the best, complete, and most practical hive on the moveable-comb principle, two of the frames to be fitted with comb foundation, with arrangements both for storing surplus honey and for wintering. Price not to exceed 1*l.* 10*s.*—1, S. J. Baldwin; 2, Abbott Bros., Southall, London; 3, S. Dickens & Co., Friern Park Apiary, North Finchley, London, N. XI. For the best, complete, and most practical hive on the moveable-comb principle, two of the frames to be fitted with comb foundation, with arrangements for storing surplus honey. Price not to exceed 7*s.* 6*d.*—1, W. B. Baker; 2, W. Edey & Son; 3, Turner & Son, Radcliffe-on-Trent, Nottingham. XII. For the cheapest, neatest, and best super for harvesting honey in the comb in a saleable form—I, Turner & Son; 2, Abbott Bros.; 3, W. B. Baker. XIII. For the best honey extractor—I, W. P. Meadows, Syston, Leicester; 2, Abbott Bros.; 2, W. B. Baker. XIV. For the best and most complete collection of hives and bee-furniture most applicable to modern bee-keeping, no two articles to be alike—1, Abbott Bros.; 2, W. Edey & Son; 3, W. B. Baker. XV. For the best straw hive complete, with floor-board, cover, super, and feeder, showing the most simple and ready means of managing with a view to obtain super honey, and the best method of feeding—I, Abbott Bros.; 2, W. Edey & Son; 3, S. J. Baldwin.

Bee Driving.—XVI. To the competitor who shall show the greatest skill in driving a stock of bees from a straw hive and in capturing the queen, and who shall best explain the method and objects of the operation—I, J. R. Truss.

Lincolnshire is one of the best counties in all England for the production of honey, and we are surprised to find that there is *no County Association* in affiliation with the British Bee-keepers' Association. There are now no less than some forty County Associations in affiliation with the parent Association, and we hope that some of the leading bee-keepers in Lincolnshire will call a meeting and form a Committee for the purpose of establishing a Lincolnshire Bee-keepers' Association, with proper rules for the future management, the appointment of the Committee, the keeping and auditing the accounts, and publishing yearly report with balance-sheet, as is done by the other County Associations. We are confident that the B.B.K.A. will do all they can to assist a Committee in such an object. With the encouragement given to bee-culture by the Lincolnshire Agricultural Society, and the general interest now taken in the same, there ought not to be any difficulty in the matter.

The judges appointed by the Lincolnshire Agricultural Society were Mr. Frank Cheshire, Tweedy Road, Bromley, Kent, and Mr. Walter Martin, Wainfleet, Lincolnshire. The Steward was Mr. R. R. Godfrey, Grantham, and Mr. S. J. Baldwin was expert.

PRESCOT AND DISTRICT HORTICULTURAL SOCIETY.

The third annual exhibition under the auspices of the above Society was held on Thursday, July 21st, in a field in Parkside, Prescot. A new feature in this year's show, and one that indicates the thorough activity and energy of the Committee, was an exhibition of bees, hives, and honey, from the Lancashire and Cheshire Bee-keepers' Association, introduced for the purpose of encouraging bee-keeping, through the exertions of Mr. W. L. McClure and Mr. W. Tyrer, the secretary and treasurer of the Lancashire and Cheshire Bee-keepers' Association. Prizes were offered for the best comb honey, and for the best twelve jars of run or extracted honey.

The first three prizes were for the best comb honey in sections (from 12 lbs. to 20 lbs. in weight): I, H. T. Gibbs, Lower Bebbington, Cheshire; 2, Jas. Scotson, Holt Hall, Gateacre. The second three prizes offered in this section were for the best twelve jars of run or extracted honey: 1, H. T. Gibbs; 2, Major Dean, and for the third prize Wm. Tyrer (Prescot) and Thomas Munnerley were each entitled to the certificate of the B.B.K.A.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. Huckle, *Kings Langley, Herts (see 2nd page of Advertisements).*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

A SCOTCH BEE-KEEPER.

[1163.] There is nothing gained without perseverance, and this truly may be said about the subject of our memoir, Mr. William McNally, Glenluce, better known in the bee-keeping world as the 'Wigtownshire Bee Farmer.' The name McNally is of late years well known as that of a Scottish family who have attained some degree of prominence as bee-keepers. The originator of the 'hobby' in the family is Mr. William, who is the second son of Mr. Ebenezer McNally of Glenluce. He was educated at the Glenluce Academy, and after passing all the necessary requirements was apprenticed to the joiner trade. Having served a period of four years he went to push his way in the world in Glasgow; but after a few

years of city life he returned to his native home and started business on his own account about the year 1876; and since then he has made a very remunerative trade, his obliging manners and strict attention to business winning him a well-deserved name among the farmers and others in his locality. In the year 1877 he began bee-keeping with one single hive, or rather a skep, for up till that period nothing else was used in the south of Scotland. The following year Mr. McNally paid a visit to some friends near Manchester, where he was introduced to the late Mr. Pettigrew, whose kindly advice was appreciated by Mr. McNally, and with the impressions left on his mind by Mr. Pettigrew he commenced bee-keeping in earnest, and in the following years he gradually increased his stocks until now he has about 140 hives, the majority on the bar-frame system, though he does not entirely discard the straw skep. Any amateur starting for the first time he invariably advises to adopt the frame system. In Wigtownshire, which has seventeen parishes, Mr. McNally has induced hundreds to take up the hobby, and is always ready to give any advice required by beginners. It was not until the year 1884 that he began to step out from home and meet his brother bee-keepers. In that year he and his brother Richard, who also owns a large apiary, exhibited at Edinburgh, and carried off the lion's share of prizes in connexion with the Caledonian Apiarian Society and the Highland Society's Silver Medal for the best display of honey-comb. The following year, at Aberdeen, the same victory was won by the brothers, and the medal was secured for a second time for the best display of honey. The following year, however, Mr. William preferred exhibiting alone, with the result that singly he won the medal for a third time for the best display of honey; his brother Richard on this occasion securing the second place. A visit to his apiaries, which are all located within easy reach of each other, will at once show the visitor that Mr. McNally possesses a great knowledge of bee matters. His neat and well-arranged hives, all painted white, have a very striking appearance: these are seen to great advantage when passing by rail, which is close by his largest apiary. There is abundance of bee plants, specially planted for the bees in the vicinity; and this with the great supply that the district produces places Glenluce as second to none in the kingdom for producing large quantities of honey in a good season. There are miles of clover and heather hills which produce the far-famed Scotch heather honey.

Leaving the apiary we come to the 'honey warehouse,' where an endless variety of all kinds of bee-keeping appliances is to be seen, as well as hundreds of well-filled sections, supers, and extracted honey just from the hives. Here it is made up into marketable form and sent by rail to Edinburgh, London, and Glasgow; and the very attractive way it is put up secures the highest price. A look round the 'honey house' shows the walls literally covered with prize cards won at the various competitions, not only in Scotland but England as well. This with the large variety of silver and bronze medals goes to prove that Mr. McNally must be a hard opponent to beat in competition. Within the last three years he has had to devote his whole time and attention to bee-keeping and to keep a steady output in season of from five to six hives per day, which, he informs us, is a regular thing.

We can think and judge that bee-keeping will not at least decrease in Scotland. Mr. McNally has many new ideas and novelties in the way of bee furniture that we have never had the privilege of seeing previously till now. The honeycomb letter building is a novel thing, Mr. McNally being the originator and inventor, and makes this class of work a special feature. His premises and workshops are commodious and well adapted for doing a large business, and being so near to railway there is no difficulty in despatching orders. The extreme kindness of Mr. and Mrs. McNally is beyond all praise, and our first visit to this apiary will not soon be forgotten. As it is our intention to return again to this veteran and give some of his sayings on bee topics, for the present we wish him continued success and a large honey harvest during the present season 1887.—'Au Revoir.'

HYBRIDS.

[1164.] No more Ligurians for me; when they have become crossed they are something too awfully fierce. As long as they remain pure, well and good, but when black blood comes in, then look out! However, I have managed fairly well with cross-breds for three years past, but this year I have had two hives which it is impossible to do anything with; smoke or carbolic is of no use whatever. I have been obliged to wear double cotton gloves, but they have stung me through them, and even through my clothes; the cause of their ire being raised was that I was examining one of the hives, being tiered, to see to what extent the grubs in the upper division had hatched out. I found that some of the grubs were those of drones in worker-cells; this I considered to be a sign that something was wrong with the queen, therefore as I knew them to be fierce I decided to replace her. Accordingly I set to work to do so, but their ferocity was so great that I further decided to put them all down, and this I have done, and am glad of it too, for they stung servants about the house, people in the road, men on the haystack, even hens and chickens.

Can you give me any reason for queen laying drone and worker eggs at same time? I mean why had one worker cell a worker grub, whilst the next door cell contained a drone? Do you think Apifuge would have quieted the brutes?—E. W. P.

[The cause of the queen laying worker and drone eggs thus promiscuously may be caused either by accident or old age. Mr. Cheshire says that old queens have been forwarded to him for dissection, and he 'invariably found the spermatheca either quite denuded of its spermatozoa, or only containing such a miserable residue as to clearly show that the eggs could, at the best, be but occasionally fertilised.' We believe that the Apifuge would have been found effective.—Ed.]

CAUGHT IN THE ACT.

[1165.] I have been hoping that some one more able than myself would ere now have issued a protest against that which appeared in July 14th, from the pen of 'A Lazy Yawning Drone' [1151]. He begins with, 'those last lines,' *i.e.*, the last—the last before the last—and the last before *it—those last lines*, indeed! Will the writer tell us how he was able to contemplate the symmetry of the cells of a *well-filled* and *sealed super?* Being *educated* perhaps he will also tell us how in such well-filled and sealed super there could be a bee *in* one of the cells helping himself to honey? 'Himself,' indicating that the said bee was one of those whom Shakespeare is said to have been so 'hard' upon in the 'three last lines' quoted by 'A Yawning Drone.' Perhaps, also, we may be told how this drone, forced into a cell and sealed up alive, was 'left on the scene of his wickedness as a warning and caution,' &c. For three days the dead body of the bee, sealed in the cell, was left to public gaze? How's that, umpire? The said body was then exhumed, for sanitary reasons, and buried (?) 'without the camp,' and the next day the cell from which the corpse had been removed was *re*-filled with the best lime honey. The 'Yawner' is particular as to its being 'lime,' probably because lime is disinfecting, and the proper sort of thing to put into a newly emptied corpse-holder. If this be not so, I fail to see how bees show

'that regard to sanitary measures' which puts them so far ahead of 'poor humanity.' Please remember, Mr. Editor, that your readers are of the 'humanity' order, poor and suffering, and that they will ever be grateful to you if you will, at least during the hot weather, kindly protect them against 'A Lazy Yawning One's' effusions, lazy and yawning not being the only adjectives applicable.—C. N. Abbott, *Fairlawn, Southall, July 23rd.*

P.S.—I think it a good thing that July the 4th [1147] passed off so well, and trust bee-keepers will not be afflicted with such another 'hot 'un.' Fancy, a swarm twenty-four days old 'meaning business' at 3 p.m., and will not be put off at 4.30, notwithstanding the best pair of sheets and the hydropult! 'Bees be werry warious.'—C. N. A.

FOUL BROOD.

[1166.] I am sorry to have to raise this cry when all around seems so fair and promising, but my feelings have received lately such a 'damper,' that out of regard to others I would earnestly warn 'new hands,' like myself, of the prevalence of this pest. Strong hives, cleanly surroundings, are of no avail. To recite my case: *everything* seemed flourishing, when, in looking for queen-cells after a very strong swarm had issued, I noticed a peculiar-looking worker-cell. The cap was barely raised above the walls; it looked darker, and I fancied a little crack was at one part, so I opened it, and there was the fatal brown matter instead of a perfect bee! Then a few similar cells could be seen, and some on another frame.

True mine is but a slight attack and of recent origin,—only one hive affected—but there it is; and I am convinced that the disease is much more common than is admitted. It was not in my case easy to detect, many would have passed it over, and yet I had never seen foul brood before. What then of those frame-hives rarely examined, and of skeps which are a closed book to their owners!

I at once placed the case in the 'doctor's' hands, and he bids me take heart, although I am so disgusted I would fain consign all to the old brimstone pit! Perhaps such experience, however, may stand me in good stead, if I persevere; at any rate, I will no longer pity those who find it of long standing in their apiaries, as I now know how easy it is to detect. Is there no physician to aid us and our bees? Can it not be prevented by 'stamping out' and the aid of an insurance society?

That it was introduced into this hive by robbing I have no doubt, as the hive is so strong, and the infected cells few and scattered. I have always put salicylic acid in the bees' drinking water, a precaution taken by few, by none that I know of. My bees drink it readily, and I hope stranger bees frequent the same vessel, as the locality is thereby benefited. I intended giving my address, in order to warn the neighbourhood, but this is styled 'Quixotic,' so I will merely sign myself, with your permission,—West Kent, *July 12th.*

HIVING BEES.

[1167.] There was a lively bee-hiving out at Judge Odom's 'oakey wood' place the other day—the whole affair being fully up to reputation as regards the tragic and ludicrous. Judge Odom had charged Mr. Roberts, the overseer, to watch the bees, and let no swarms get away. Swarming season approached, and Roberts made ready for his apiarian harvest by preparing hives, and conveniently placing tin pans, bells, horse-shoes, and other instruments of music likely to compose and detain a swarm of bees on taking French leave.

He did not have long to wait. The other morning the hottest kind of a swarm darkened the air, and Roberts put his orchestra in motion with a vigour that would cause any musically educated bee to pause, reflect, and turn back. They did pause, and with one accord pitched upon a tree in the yard, where they formed themselves into a funnel-shaped mass.

Roberts then played upon them with a huge syringe from a bucket of water, and having effectually, as he supposed, put out the incipient flame that lurks in their tails, prepared to gather them into his garner. The bunch of bees were some ten or twelve feet from the ground, and the object was to land them safely within the bee-hive. A serious difficulty here met Mr. Roberts, to wit, how to bring the hive in proximity with the bees, and retain it there. The gods of genius were propitious; necessity, prolific old mother of invention, brought forth a son in the person of 'Blind Phil,' a coloured man on the place, who is nearly or quite blind.

'Phil, come here,' said Mr. Roberts, 'I want you to hold this bee-hive under that bunch of bees, while I climb the tree and sweep them in.' And without ceremony or unnecessary delay, he seized Phil, and placed him directly under the bees, put the bee-hive on top of his head and directed him to stand fast.

Broom in hand, Mr. Roberts then ran up the tree with the nimbleness of a cat or squirrel, and, crawling out, hung himself on a limb, and cautiously began to sweep them off, letting them fall in lumps into the open box on the negro's head below. Mr. Roberts congratulated himself on the success of his scheme. Sometimes a wad of bees would miss the hole and strike Phil on the shoulder, which made him restless.

'Stand firm, Phil,' said a voice from above, 'and they will not sting you. If a bee finds out that you are afraid of him, he will sting you certain. Just let him know that you are not afraid, and there is no danger,' remarked Mr. Roberts by way of encouragement.

'Ouch! golly! I'm stung for shuah! Whew! Mars Roberts, I'm got to drap dis box!'

'Stand still, you chicken fool you! I'll soon have them all in. Who cares for a bee?'

Just then an old-liner marched down Phil's back, under his shirt, and Phil became still more uneasy, but Mr. Roberts spoke soothing words from above. Suddenly, however, the bees seemed to realise who was disturbing them, and about forty 'business fellows' popped Mr. Roberts simultaneously, and he dropped his broom, lost his hold, and came down with a crash upon the negro and box.

With a whoop and a wild screech, Phil got upon his feet and lit out, followed by a crowd of bees. He forgot his blindness and went he knew not whither, striking the garden palings broadside, and levelling three panels with the ground. He never stopped, but continued to charge around the inclosure until the vegetables were all destroyed.

In the meantime Mr. Roberts was fully employed; in fact, he was 'very busy.' Around the house and through it, then under it, out to the gate, through the house-lot, and 'over the hills and far away.'

Neither were the bees idle, but diligently 'improved each shining hour,' flitting from flower to flower (Roberts and Phil were the blossoms), culling all the sweets and raising merry 'Hail Columbia.'

The swelling has all gone down now, and if any one sees a stray swarm of bees in the neighbourhood they need not hesitate to hive them, as Mr. Roberts and Phil will lay no claim on them.—*Albany, Ga., News.*

FERTILISATION OF QUEENS.

[1168.] Mr. Henry Alley, in his very valuable *Handy-Book of the Apiary*, expresses the opinion that if one has a considerable number of colonies of Italian or Syrian bees, and half a mile away there are numerous colonies of black bees, not one queen in twenty-five will be mismated. From this opinion I must respectfully dissent.

If one has a small number of one race of bees, and from one to two miles away there are a considerable number of another race, it is not uncommon, as I know by observation, for one-half the young queens to mate with drones of the other race. When I had the only Italian bees in this vicinity, a black queen five miles away produced banded bees; and it is almost an absolute certainty that she had mated with one of my drones.

It is impossible to tell with any certainty how far drones and queens will fly. It is probable that the former fly several miles, and queens may fly further than is generally supposed. It is my opinion that a young queen is never fertilised on her first flight, no matter how many drones there may be in the air in the vicinity of her hive. I have watched a great many for the purpose of finding out all that may be known concerning their habits, and my observations are to the following effect:

A young queen, before she comes out in earnest, familiarises herself with the locality of her hive. She comes out and flies around in the vicinity of the hive for not more than five minutes at a time, and then enters the hive and remains for about five minutes. During the time she is on the wing, she may be observed to approach her hive, in some cases several times, without entering, and she is probably not out of sight of it at any time. I have observed five of these five-minute excursions in less than an hour; but I have never known a queen to return, having mated with a drone in less than seventeen minutes from the time she left the hive. I do not say that they never do mate and return in less time than that, but none that I have observed have done so. This gives a queen time to travel several miles, if need be, and her frequent short flights seem designed to enable her to take a longer flight, if necessary, without getting lost.

Now I venture the opinion that, other things being equal, a queen is quite as likely to mate with a drone belonging to a colony half a mile or more away as with one from a colony in the same apiary. The instinct that prompts the queen and drone to fly abroad, prompts them to leave the vicinity of their homes, and thus prevents in-and-in breeding.

I think it beyond dispute that drones have places of rendezvous, where, from I know not how far, they congregate. In my early bee-keeping days, from twelve to fifteen years ago, the place of meeting was in the edge of a wood a quarter of a mile east of my house. In 1883 and 1884 the playground seemed to be partly over my own premises, and this year over a woods pasture just south of my place. Now, it is a question of some importance whether in a given locality there may not be more than one place of congregating, and also whether the resort of my drones may not be farther away than that of some other drones. In that case my queens would be more likely to meet drones from a neighbour's apiary than from my own.

The above facts and surmises have a bearing upon what I am about to relate. I had in the spring thirty colonies of bees, all except a very few were Syrians, the rest being Italians. There were but two colonies showing any black blood, and I presume that in an area of two miles in diameter there are not as many colonies of bees belonging to other persons as I have, and I am confident that there is not a colony of blacks within half a mile. I have purposely allowed my bees to have a liberal supply of drone-comb, and the number of drones has been large; and yet, out of thirty-one queens reared, twenty-three have mated with black drones, and of the eight remaining two or three are doubtful.

I have never before had such an experience, and I am at a loss to account for it. Have black drones come from a mile or so away and established a resort into which my queens have gone? Or have my queens passed by the resort of their male neighbours, and gone to that of the drones of some other locality? Or is there somewhere in this vicinity a colony of blacks having drones that are more amorous and enterprising than my Italians and Syrians? One of these hypotheses must be true, but which one I have vainly tried to ascertain. There is no doubt at all that these queens mated with *black* drones, and not with mixed ones, because they produce many bees that are entirely black; and the queens themselves are pure Syrians and Italians.

It is commonly recommended to rear queens early in order to have them purely mated. In this I have generally failed. My early queens would not mate with my early drones until the weather became warm—almost hot—and by that time black drones were plentiful. More of my queens are purely mated in the late summer and early autumn than in the earlier months. The reason may be that at that time drones and queens do not venture so far from home.—M. Mahin, D.D., New Castle, Ind. (*American Bee Journal.*)

MY PET BEES.

[1169.] I said in my last letter I would tell you more about my humble-bees. During the winter I made spare hives, one out of a small yeast-box. It resembles a Cowan hive. Most of your readers will laugh when they hear of me taking an artificial swarm off humble-bees, but I did so; and this is the way I proceeded I have helped my father to take artificial swarms, so I knew how to manage. The stock was in the 'Clock-case' hive, so I took the 'Cowan' hive and placed it near. Then I took out some of the brood and cells containing honey, which I placed in the 'Cowan' hive, and put it in place of the old stock. The latter I removed to another part of the garden. But I forgot to tell you that I had a lot of queens in the hive (here is a difference between humble and honey-bees), so I took one or two of the newly-hatched ones for the artificial swarm. But all the bees, with the exception of a queen, one or two workers, and a few drones (which the boys about here call 'double-steng'd 'uns,' because they cannot sting), have gone to the place of the old stock.

At the interval of rest while writing this letter, I go to see a new lot of humble-bees, and find one tugging at a piece of straw to take into the nest. You will hear undoubtedly about the new lot, which is very prosperous, soon.—Darcy Grimshaw, *Horsforth, near Leeds.*

PROFESSOR VON SIEBOLD.

Karl Theodor Ernst von Siebold was born at Würzburg, in Bavaria, on February 16, 1804. His brother was the well-known traveller and philologist. Karl was brought up chiefly, under the superintendence of his father, for the medical profession, and he carried on a practice for a few years as a physician at Heilsberg and Königsberg. In 1835 he received the appointment of Master of the Lying-in Hospital at Dantzic. Early in his life he showed an interest in zoology, and in 1840 he removed from Dantzic to Erlangen, where he taught comparative anatomy, zoology, and veterinary medicine. In 1845 he was appointed Professor of Zoology at Friburg, and shortly afterwards he made a prolonged sojourn on the Adriatic. At this time he worked with immense zeal and ardour at the anatomy of the marine invertebrates; and as the result of this work and his lectures combined he commenced the elaboration of his well-known *Lehrbuch der vergleichenden Anatomie der Wirbellosen Thiere.* In his preface to this work, which has been translated into English and French, he insisted on the importance of a knowledge not only of the minute anatomy but also of the developmental stages of the forms described. Generous aid in the completion of this at the time most excellent treatise was given to him by C. Vogt, H. Stannius, A. Krohn, H. Koch, and A. Kölliker; and in 1849 he founded, in connexion with the

last-named of these eminent biologists, the *Zeitschrift für wissenschaftliche Zoologie*, a journal which has ever held a leading position among the scientific publications of our day, and one which is still known and esteemed wherever zoology is studied.

In 1850 Von Siebold was appointed to the Professorship of Physiology in the University of Breslau, and also received the charge of the Physiological Institute of that city.

In 1853 he was appointed Professor of Zoology and Comparative Anatomy in the University of Munich, and Director of the Zoological and Zootomical Cabinet in that city. These positions he filled during the remainder of his life.

Shortly after his appointment to the Munich Professorship he commenced an elaborate series of investigations into the vexed question of 'Parthenogenesis,' entering on the subject with a belief that facts had been misunderstood; and his treatise on this phenomenon, as found by him to actually exist in bees and moths, was a genuine contribution to science. This work was published at Leipzig early in 1856, and was translated by Mr. Dallas the following year into English.

Somewhat earlier in date he published a memoir on 'Tape and Cystic Worms,' with an introduction on the Origin of Intestinal Worms,' which was deemed worthy of being translated into English, by Professor Huxley, for the New Sydenham Society. The good that this translation effected by introducing some scientific facts to the notice of our medical men it is not easy to calculate.

In 1858 the Royal Society elected him as one of their honorary members. In 1867 he was made a corresponding member of the Institute of France. There seems little need to enumerate all the honours that were conferred on him during the half century that he was known as one of the distinguished zoologists of Europe.

In the important and indispensable catalogue of Scientific Papers published by the Royal Society, we find a list of over 130 memoirs ascribed to Professor von Siebold.

Failing health during the last few years interrupted this, up to 1874, steady flow, and Dr. Ehlers undertook much of the labour of editing the *Zeitschrift*. Those who had a personal knowledge of Von Siebold will remember his pleasant and friendly manners, the readiness with which he placed at the students' disposal all the information in his power, and the visitor to the Zoological Museum at Munich will not soon forget the vast stores, not only collected, but scientifically arranged, under the superintendence of Von Siebold.

Professor Von Siebold died at Munich on Tuesday, April 7, 1885. He favoured the moveable frame invention, and was a progressive apiarian.

Echoes from the Hives.

Bournemouth, July 19th.—My bees, twelve stocks, have done fairly well through this dry season, with the help of a little feeding with syrup, and now *that* is not wanted, as we have plenty of heather in blossom on the surrounding moorlands and among our pine-trees, but the absence of rain since the early part of last month or the end of May has seriously decreased supplies from other bee flowers. I notice in this land of rhododendrons (Bournemouth) the honey bee seldom visits its flowers, and they were all 'ablaze' with blossom this season,—at a time when other flowers were scarce here; but the 'humble bee' seems to glory in it, and loves the rhododendron blossom, 'tumbling over and over in it' for its pollen.—Thomas W. Blake.

Chertsey Grove, July 20.—Some three weeks ago I made an 'Echo' in your valuable *Journal*, when my fears were that I had foul brood, but only turned out to be queenless. Well, I may just say that I had then put on a crate of sections to two of my boxes, and on July 12th I looked at one of them and was able to take off seventeen well-filled sections, leaving the rest partly capped and replacing others in place of those I took off. On July 14th I looked at the other box, and was able to take off eighteen well-filled sections first, and the rest were nearly all filled and partly capped over, and of course I replaced the ones by well-combed sections and each of these boxes had twelve well-filled bars of brood and honey. I also saw in your last issue something said about wasps. Since then I have taken close notice of them, and last night I saw five flying about my hives and to-day about the same number. I only hope they will not increase; I kill all I can to lessen them. I hope all your readers have done better than I have, although I do not complain.—Robert Driver.

Caerleon, South Monmouthshire, July 25.—Bees doing nothing in the way of storing since July 5th. The effect of the long-continued drought will be a serious loss to bee-keepers down here. The aftermath clover and limes, from which we get our surplus, failed entirely this year through want of moisure. All the sections I have taken were finished before July 1st; nothing since. I fancy that many when they remove their sections will find they have more unfinished than finished ones.—Silurian.

East Malling, Maidstone, July 25.—My experience in this neighbourhood is very like many others this year. May nearly a failure from bad weather, but June a success, the bees taking full advantage of the white clover; but I was surprised, considering the sunny weather, at the small quantity they were bringing in from the limes until I saw your remarks last week about the effects of the long drought even on the limes. Some of my early honey had rather a milky appearance, but if allowed to stand was beautifully clear. I think this was from the white clover. I never saw fewer queen-wasps than I have this year.—E. P.

Kingsbridge, South Devon.—Wasps are plentiful in this district. I have two nests within ten feet of each other in my garden. Bees have ceased gathering unusually early this year; I suppose owing to the long absence of rain. Average time for the last fifty years of ceasing to gather has been about 20th July. By what I can ascertain it has been a bad breeding season, as I believe showery weather is more favourable.—John E. Adams.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

Rees Evans.—*Foul Brood.*—Yours is a case of foul brood, with pierced and sunken cells, rotten larvæ, and the peculiar scent attaching thereto. Place a lump of camphor, the size of a walnut, enclosed in a bag, inside the hive to which you have joined the diseased bees, and feed on phenolised syrup according to Mr. Cheshire's recipe.

East Dulwich.—*Cause of Dead Queen.*—In all probability, your bees were superseding their queen for some reason best known to themselves, and the dead queen you found was either the old one or a supernumerary. Do not interfere with them. It is as well, however, to lower the hive sufficiently to prevent the entering of bees, in cases of robbing, but allowing a current of air to pass beneath the combs.

R. E.—*Drones.*—On the approach of the swarming season, drones are brought into existence; their purpose in life is to fertilise the young queens. At the close of the season, when their services are no longer required, and when their presence is a burden, the drones are mercilessly driven out of the hives and allowed to perish.

Robert Driver.—1. *Drones.*—Your difficulty with regard to your drones has been settled by the bees themselves by this time. 2. *Driving and Uniting.*—Your proposed plan will act very well, and should produce a large colony for wintering. The other portions of your letter we have transferred to our 'Echo' column.

East Kent.—It very much depends on the state of the comb whether they are worth keeping after three or four years

old. Foundation is now so cheap that it is a very easy matter to renew comb. If combs at that age are tough, clean, and free from moth, they can be used for colonies which are being worked for extracted honey, or for the bees to winter on. Bees winter on old, tough combs better than new. 2. The honey-harvest has now in most districts been gathered in, and the thought of the bees is now devoted to the destruction of the drones.

EKAON.—1. *Keeping Honey.*—Not lower than 45° F., and in a perfectly dry place. 2. The above applies to this query. 3. *Extracting Honey from Brood Combs.*—It is preferable not to extract honey from combs containing brood. 4. The honey surrounding the brood-nest will be best left for the bees' consumption. 5. *Driven Bees.*—Unite the driven bees to the stock in bad condition. If healthy, first remove the queen from the hive, then feed up fast. Why not get the driven bees from a greater distance? You will lose a great number by their returning to the original stand. 6. *Re-queening Stock.*—This cannot be done without loss of breeding time, unless you purchase or raise the queens in nuclei. 7. *Inverting.*—Let it alone.

JAS. MERSON.—1. *Driving Bees.*—You can drive the bees as soon as possible after the honey flow ceases. If you do so now, no doubt much of the brood would be destroyed. It is very bad policy to place driven bees in an empty skep for them to build combs; they must be placed in a frame-hive on combs or combs and foundation, preferably the former. You must feed up as fast as possible, and finish doing so before the commencement of October. 2. *Address of Hon. Sec. Devon and Exeter Bee-keepers' Association.*—Mr. Jas. Dallas, Albert Memorial Museum, Exeter. 3. *British Bee Journal.*—You will find that with its aid every information on modern bee-culture can be obtained.

E. SPILLER.—*Sending Bees to Heather.*—Ready built combs are much better than foundation for such purpose.

NOVICE.—*Cowan Hive.*—1. There are several successful bee-keepers living in the neighbourhood of Highgate and Finchley with no greater facilities than yours; consequently we see no reason why you should not attain to the same measure of success. 2. None of Mr. Cowan's inventions are patented or registered, consequently all bee-keepers are quite at liberty to copy any or all of them. 3, 4, 5, and 6. Your better plan will be to purchase one 'Cowan' hive from one of the respectable dealers, and copy that in every detail. When ordering, say you want it fitted with 17 in. top bar, standard size frames; ten frames will be large enough for your district. Each frame takes $1\frac{3}{16}$" or $1\frac{1}{2}$" bare. 7. Pine is the most suitable wood for hive-making, get it free from shakes and knots and well seasoned. Your sketch is very neatly done.

Show Announcements.

August 3-5.—Yorkshire Agricultural Society at York. Secretary, H. L. Rickards, Poole, near Leeds.

August 11.—Taunton Flower Show, at Vivary Park, Taunton, Somerset. Entries close August 8. Hon. Sec., W. B. Maynard, 5 Hamnet Street, Taunton.

August 12.—Maer Fête and Honey Show. Entries close August 5. John R. Critchlow, Hon. Sec., Maer Farm, Newcastle, Staffs.

August 9, 10.—Irish Bee-keepers' Association at Salthill Gardens, near Dublin. Entries close August 2. Hon. Sec., Henry Chenevix, Blackrock, Dublin.

August 14.—Handbridge, Chester St. Mary's Horticultural Show. W. E. Little, Hon. Secretary, Eastgate Row, Chester.

August 16-17.—Wilts County Show at Salisbury. Hon. Sec., Rev. W. E. Burkitt, Buttermere Rectory, Hungerford.

August 24.—Lancaster Agricultural Show. W. Liddell, Hon. Secretary, Dale Street, Lancaster.

August 31-Sept. 3.—Royal Manchester and Liverpool Agricultural Show at Manchester. W. Lees McClure, Hon. Secretary, The Lathoms, Prescot, Lancashire.

Business Directory.

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THE BRITISH BEE JOURNAL

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Editorial, Notices, &c.

CONDEMNED BEES.

The approach of the time when cottagers are wont to consign their bees to the brimstone pit causes numerous inquiries to be made as to the best means of rescuing them, and, at the same time, making the best use of them. Where condemned bees can be obtained they offer a convenient and inexpensive method of increasing stocks, and are often most useful in strengthening stocks which otherwise might not survive the winter.

When stocks are made up entirely of condemned bees, some disappointment is sometimes experienced in spring from dwindling. When this takes place it is owing to faulty management in autumn. It should be borne in mind that the bees when taken have done their work for the year and are preparing for a season of rest. It is quite contrary to nature to take them, put them into empty hives, and call upon them to undergo the exhausting labour of comb-building, at a season too in which naturally combs are not built. Every one knows, or should know, that the life of a bee is measured by the labour performed by it, and thus the condemned bees, if exhausted by comb-building in autumn, succumb to the trying work in spring; they have not strength and vitality left to resist the fatal influence of cold winds, and so they die, and the stock dwindles away before sufficient young bees are produced to keep up its strength.

All this teaches us that we must give these bees as little work to do in autumn as possible by giving them ready-stored combs, and placing them, as far as possible, in the same position as they would have been had they been left undisturbed, and thus the process of making up stocks from condemned bees should commence now. As in most districts the honey harvest is practically over by the end of July, a few strong stocks may be set to work to provide combs for the bees which will be taken, as a rule, towards the end of August. By feeding rapidly, removing outside combs as soon as sealed, and giving sheets of foundation in the middle of the hive, a few stocks may provide sufficient combs, with the addition of those which may be removed from other stocks for the winter, to furnish several lots of condemned bees. As a guide to the number to be provided, we may reckon that six combs will be required for every two skeps taken. Of course, it depends upon the size of the skeps in use. In most places from two to three pounds of bees will be as much as we may expect to get from each skep. Five pounds will about cover six combs, standard frames.

Providing Combs.—Combs are so valuable for this purpose that even unsightly ones are better than none; and it may not generally be thought of that even small pieces, such as are trimmed off in transferring, may be utilised. Crowd them into a frame, place a piece of wire netting on each side, place the frame in the middle of a strong stock, and in forty-eight hours a very fair comb will be produced. Old black combs in frames need never be cut out and destroyed; if they are roughly scraped down to near the mid-rib and given to bees they will be speedily rebuilt, and such rebuilt combs are tough and excellent for extracting purposes.

When some fifty stocks or more can be obtained, the providing combs for them, and more especially making syrup for the stores, is rather a heavy job, and by the usual plan of boiling a very messy one. Some feeders are sold in which sugar is placed in a perforated zinc basket and water added to dissolve it. This plan saves the boiling, but as the bees can only feed from the top of the solution, which is thin, while the dense is at the bottom, they have more labour to evaporate the food down than if very thick syrup is given them. Good thick syrup may be made in large quantities by the following plan:—

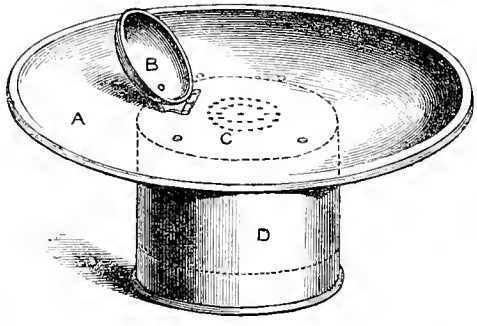
Take a cask, stand it on end, and take out the other head. Make a strong canvas bag, long enough to hang within six inches of the bottom of the cask, and fix it in by means of a hoop resting on the top edge. Put a tap, or, better still, a treacle-valve, near the bottom, and the apparatus is ready. Fill the bag with sugar, which should be 'preserving lump' or crystal, not raw, and fill up the cask with cold water. As the sugar dissolves the dense solution sinks to the bottom and can be drawn off. More sugar and water being added, a nine-gallon cask will provide a hundred-weight of syrup a-day if required. Having suggested plenty of work for the present preparation for the expected condemned bees, we will touch upon the methods of taking them in a future issue.

MIDDLESEX BEE-KEEPERS' ASSOCIATION.

A third-class examination will be held at Southgate on Saturday, August 20th, in connexion with the Middlesex Bee-keepers' Association's North-east Provincial Show of Honey, Hives, and Bee-furniture on that day. Candidates should at once send their names, with 2*s.* 6*d.* entrance-fee, to the Secretary, the Hon. and Rev. H. Bligh, The Vicarage, Hampton Hill.

KILLICK'S WAX-EXTRACTOR.

This extractor was exhibited at the late Conversazione by the Rev. W. E. Burkitt, Hon. Secretary to the Wilts B.K.A. The mode of using it is very simple, and from the samples we have seen of the work it has done we should say it is most effective.



The pieces of comb are placed on the round dish, A, with lid, B, closed. The wax as it melts runs under lid through strainer, C, into pan, D, in which a little water is placed. The whole is put in a slow oven. If the oven is hot the wax will not get burnt or discoloured, because as soon as it melts it runs under the lid through the strainer into the water in pan. If placed in the oven about an hour, more or less according to heat, this would prove sufficient. It then should be taken from the oven, and when cold the wax will turn out in a cake.

USEFUL HINTS.

Weather.—Although showers have fallen in many districts they have avoided our locality, and our fields are still parched, affording no forage for the thirsting bees. Honey storage has long since ceased, and colonies, though not drawing upon collected stores, are living from hand to mouth.

Robbing.—The greatest care must now be used in manipulating hives. During the dearth of honey, in this bright hot weather, the temptation to robbing is so strong that it is unsafe to open a hive during working hours. We have witnessed the destruction of a colony in the short space of five minutes under similar circumstances to those which now prevail. When, therefore, manipulation is necessary let it be done in early morning or late evening, before or after the hours of flight.

Extracting.—Where colonies have been working in sections, or other supers, the brood-nest will often be found blocked with honey, no available space for brood-rearing being left in the hive. In such cases it is of the utmost importance that breeding space be provided at once, since on the September hatched bees successful wintering chiefly depends. About half the combs in each hive should be thoroughly extracted, those being chosen which contain the greatest amount of pollen, and the remaining combs of sealed honey reserved for winter store for the bees. The extracted combs should be returned to the centre of the hive to form the future brood-nest. The queen is thus stimulated to laying, and the hatching out of a good batch of September brood is secured. This, like many other operations in apiculture, admits of delay only at the serious loss of the apiarist.

When taking cottagers' bees at the end of September we have often found a whole hive an entire mass of sealed honey, with a young and evidently prolific queen followed by a handful of old bees. We need hardly say that such a colony is doomed to perish before the spring, if not before the winter arrives.

After Swarms headed by young queens, and not over-burdened with stores, may be fed up to strong colonies, or spare combs of sealed honey may be given on either side of the brood-nest. Such colonies generally winter well, and are often found amongst the best at spring.

Re-queening, and the introduction of imported queens, may now be successfully carried on, and by such means the working power of the apiary another season may be largely increased, but the introduction must be made at night for the reasons stated above.

Feeding.—The sooner colonies in want of winter stores are fed the more opportunity will be afforded them of getting all food sealed, and of setting their house in order for winter, and, in view of the prevalence of foul brood, we strongly advise that phenolised syrup be used. If Mr. Cheshire's recipe is adhered to bees will never refuse the syrup. At least this is our experience.

Water should be supplied to every apiary where a natural supply in the immediate neighbourhood does not exist. During the present drought our bees consume a large quantity, the troughs being covered with thirsting bees from morning till night. These troughs should stand clear of shade, with the sun's rays full upon them, as the bees prefer tepid water to cold.

Condemned Bees will now be eagerly sought, but we advise caution in this matter while foul-brood exists to a large extent in too many localities. Bees taken from an infected hive will convey the seeds of the disease on their antennæ, legs, and indeed on almost every part of their bodies, and we have little doubt that the disease has often been introduced into apiaries by condemned bees. Skeps should be thoroughly examined before driving, and if the slightest suspicion exists of the presence of the disease, we advise the entire apiary being left, if not to the sulphur pit, to the devices of the owner, aided by the county expert, to endeavour to work a cure. These condemned bees are very useful as an autumnal addition to small or queenless colonies, and many a strong colony, headed by Italian and Cyprian queens, have we built up of such material. For doing this we prefer August to September, as the bees have more time for breeding and making preparation for winter before the cold is upon them.

Cottagers and others, who work on the skep system, will be willing to part with their bees earlier than usual owing to the present dry season, as they are well aware that their bees are wasting rather than gathering. Driving or 'bumping' should be neatly and quickly done without any mess, and the emptied skeps given back to the bees to clean before being stowed away for use another year.

Unfinished Sections are best extracted, and, when thoroughly cleaned by the bees, should be stored in a dry place for use next season. Fumigation with sulphur will keep them free from moths, and racks filled with these should be tied up as parcels in paper to keep them free from dust. A little attention bestowed now will be amply rewarded on the approach of another season. If the honey-flow has ceased, all supers should be removed

from the hives; and where the latter are crammed with honey, extracting, as advised above, should be practised, but if, owing to the removal of large quantities of super honey, a sufficient quantity has not been left for wintering, a supply of sealed combs must be given, or otherwise the colony must be fed up to sufficient weight on phenolised syrup of a thick consistency.

HEATHER should be in full bloom by this time; and if the fine weather continues, we may hope for an ample yield of the delicious nectar afforded by this plant. We are often asked by those who reside within a couple of miles of the heather, whether a larger quantity of honey would be gathered by the bees, if they were moved over the intervening space, and placed in the midst of their labour. To such we reply undoubtedly, Yes. Those only who have tried both plans can realise the advantage of the bees being close to their work, especially during the latter part of the season. We have known colonies located two miles distant from the heather, never to visit it at all during even the finest weather; while those set down in its midst have filled hives and supers, yielding an ample return.

DELICIOUS HONEY!—From a paper contributed by Miss Gordon Cumming to the *Nineteenth Century* of June last on 'Strange Medicines,' we cull the following:—'Abdallatif, a traveller of the twelfth century, relates that one of his friends found in the tombs at Ghizeh a jar carefully sealed, which he opened and found to contain such excellent honey that he could not resist eating a good deal of it, and was only checked in his feast by drawing out a hair; whereupon he investigated further, and found the body of an ancient Egyptian baby in good condition, and adorned with jewels. He does not record how he enjoyed that meal in retrospect. Imagine dining off the honeyed essence of a baby of Pharaoh.'

ASSOCIATIONS.

BERKSHIRE BEE-KEEPERS' ASSOCIATION.

The seventh Annual County Show of the Berkshire Bee-keepers' Association was held in the Home Park, Windsor, on Tuesday the 19th, in conjunction with the Prince Consort's Association. There are branches of this Association at Abingdon, Bradfield, Farringdon, Maidenhead, Newbury, Twyford, Wallingford, Wantage, Windsor, Wokingham, most of which were present in the competition for the prizes.

The day was all that could be desired. The situation of the tents among the magnificent trees of the Home Park, with a grand view of Windsor Castle standing above the green trees and shrubs, was truly beautiful, and more than words can describe.

At an appointed time, her Royal Highness the Princess Christian drove on to the ground, went through the tents, and afterwards gave the prizes away to a very large number of persons from both the Associations, and then left for London.

The exhibition of hives and appliances was small, and it was evident that the show could not have been so well advertised as it ought to have been. In the best collection of hives and appliances there were only two entries, which the Judges considered about equal, the first and second prizes being added together and equally divided between Messrs. Abbott Bros., Southall, and Mr. A. F. Hutchings, of St. Mary Cray, Kent. Mr. Hutchings also took the first prizes in both classes for hives.

In the honey classes there were a fair number of entries, the extracted honey was very good, but the sections were not so good as this county usually produces. Mr. William Woodley exhibited a design in honeycomb. It had a crown above the letters 'V. R.,' and the words 'Jubilee, 1887,' below. There was a stall supplied with various articles of food and beverages, of which honey was a principal ingredient.

The Judges were Mr. Otto Hehner, of Billiter Square, London, and Mr. John M. Hooker, of 76 Tyrwhitt Road, St. John's, S.E. The Hon. Secretary is the Rev. R. Errington, Clewer Rectory, Windsor, and Mr. A. D. Woodley, of Reading, is Assistant Secretary and Expert.

The following is a list of the prizes awarded:—

Open Classes.—For the best Observatory Hive, stocked with bees and their queen—1, A. F. Hutchings, of St. Mary's Cray, Kent, 20*s*. For the best collection of Hives and Bee Appliances, no two articles to be alike—A. F. Hutchings, and Abbott Brothers, of Southall (bracketed equal). For the best Hive complete, with facilities for harvesting honey, with arrangements for wintering; price to be a consideration—1, A. F. Hutchings; 2, A. D. Woodley, Reading. For the best and cheapest Frame Hive, price not to exceed 10*s*. to be purchased by the Committee—1, A. F. Hutchings; 2, C. Redshaw, Wigstone, near Leicester. For the Straw Hive best adapted to modern bee-keeping, price not to exceed 5*s*.—1, W. B. Webster, Wokingham. For the neatest and best Rack containing 1 lb. sections, prepared for placing on the Hive—1, C. Redshaw; 2, A. D. Woodley. For the best Crate for the safe conveyance of honey, by rail or otherwise—1, A. D. Woodley. For the best Honey Extractor, price to be considered—1, A. F. Hutchings, 10*s*. For the best sample of Thick Comb Foundation manufactured in the United Kingdom from pure bees' wax, not less than 2½ lbs., with price per lb. attached—1, T. B. Blow, Welwyn, Herts. For the best sample of Thin Comb Foundation manufactured in the United Kingdom from pure bees' wax, not less than 2½ lbs. with price attached—1, A. F. Hutchings. For the best Feeder—1, W. B. Webster, Wokingham. For the best exhibition of Honey from one Apiary, the prizes presented by Mr. Richardson-Gardner, M.P.—1, W. Woodley; 2, Woodley, Bros. For the best Super of Honey (not sectional)—1, J. Rayer, Jun., of Stanmore; 2, W. Woodley. For the best 21 1-lb. Section of Honey—1, J. Rayer, Jun.; 2, W. Woodley; R. W. Bunce, Theale, highly commended; and Champion, of Reading, commended.

Special Class (open to Members of the Berks Bee-keepers' Association).—For the best 21 1-lb. Sections of Honey, the prizes given by the British Bee-keepers' Assaciation—1, J. Rayer, Jun., silver medal; 2, W. Woodley, bronze medal; 3, Woodley Bros., certificate. For the best 12 1-lb. Section of Honey—1, W. Woodley; 2, J. Rayer, Jun.; Woodley Bros., highly commended. For the best exhibition of Run or Extracted Honey in glass vessels—1, W. Woodley; 2, H. Fewtrell, Reading. For the best 12 lbs. of Run or Extracted Honey, in 1-lb or 2-lb. glass vessels—1, W. Woodley; 2, H. Fewtrell; J. Rayer, Jun., a special prize; and Woodley Bros., highly commended. For the best collection of Pure Beeswax—1, W. Woodley; no second prize awarded.

Special Prizes.—For Recent Inventions (open to all)—1, A. D. Woodley, for Section Cases, bronze medal; 2, H. Augur, Windsor, for 'Winter Passages,' certificate. For the best collection of Honey applied as food; 1, Darvill, Reading, silver medal. For the best collection of Honey applied as beverages—1, S. Fry, Waltham, for 2*d*. honey beverages, silver medal.

The humane system of procuring honey is generally adopted by cottagers who keep bees, and the Association are able to trace satisfactory results of their efforts in this respect.

THE GLOUCESTERSHIRE AGRICULTURAL SOCIETY.

This Society held its annual show on July 26th and two following days at Cheltenham in the Pittville Grounds. The Gloucestershire Bee-keepers' Association held their annual show in conjunction with the above Society, and we understand that it was the largest exhibition of honey ever held in the county. The amount entered for competition was about three quarters of a ton. The honey in the comb was of good colour, but the sections were not so well filled as they ought to be, having lots of 'pop-holes' at the corners, which in some cases were partly covered by the lace on the glass boxes and by the wide coloured paper used to fix the glass at

the sides of the sections. This paper covering over edge of section and on glass should never be more than three eighths of an inch.

The extracted honey was very good indeed, some of the exhibits being remarkable for colour, consistency, and delicate flavour. Lord Sudeley was an exhibitor in most of the honey classes, one being for a design in honeycomb—his Lordship's crest with 1887. We understand that Lord Sudeley has planted some two or three hundred acres of fruit-trees of all kinds, and has established an apiary of over two hundred hives of bees in the centre of it, so as to ensure the proper fertilisation of the fruit blossoms. He will no doubt be amply repaid in both fruit and honey for his forethought in the matter.

In hives and appliances there were very few entries, and the question was naturally asked, Where are our leading hive-makers? Are they willing to let smaller men come to the front, having themselves already more orders than they can execute? Mr. A. F. Hutchings, of St. Mary Cray, Kent, obtained first prizes in both the hive classes. In the collection of hives, &c., there was only one entry, that of Mr. E. J. Burtt, the expert of the Association; there were no other exhibits requiring special mention. Mr. W. D. Slade, of Cheltenham, is the hon. secretary, and took the management of the show. Mr. John M. Hooker, one of the Committee of the British Bee-keepers' Association, acted as judge. Mr. Hooker also examined and passed Mr. R. Woodward, of Charton Kings, Cheltenham; Mr. Geo. Newman, of Sutton House, Gloucester; and Mr. Arthur James Brown, of Bradley, Wootton-under-Edge, as third-class experts.

The awards were as follows:—

Hives.—Best moveable frame hive for doubling—1, Mr. A. F. Hutchings, Kent; 2, Mr. A. J. Burtt, Gloucester. Best moveable frame hive—1, Mr. A. F. Hutchings; 2, Mr. A. J. Burtt. Best flat-topped straw hive, with roof—Mr. A. J. Burtt. Largest and best collection of hives and bee-furniture—Mr. A. J. Burtt. Best cylinder extractor—1, Mr. W. P. Meadows, Syston, Leicester; 2, Mr. A. F. Hutchings. Best stock of bees in observatory hive—Mr. H. A. Purnell, Cheltenham. Best 24 1-lb. sections of comb honey—1, Mr. A. A. Cole, Cirencester; 2, Lord Sudeley, Toddington; 3, Mr. F. Butler, Cotham, Bristol; H. C., Mr. R. W. Lloyd, Chippenham, and Mr. C. Marshall, jun., Cheltenham. Best 12 1-lb. sections of comb honey—1, Mr. W. Woodley, near Newbury; 2, Mr. A. A. Cole; Mr. R. W. Lloyd, Badminton; H. C., Mr. F. Butler; C., Lord Sudeley. Best exhibit of 24 1-lb. glass jars of run or extracted honey—1, Mr. A. A. Cole; 2, Mr. R. W. Lloyd; 3, Mr. C. Marshall. Best exhibit of 12 1-lb. glass jars of ditto—1, Mr. W. Woodley; 2, Mr. R. W. Lloyd; 3, Mr. A. A. Cole. Best super of honey in the comb, not sectional—1, Mr. E. A. Brown, Gloucester; 2, Mr. T. W. Swinbourne, Winchcombe. Designs in honeycomb—1, Lord Sudeley (his Lordship's crest was worked in honey and comb weighing about 25 lbs.); 2, Mr. F. J. Chinnick, Cheltenham ('1886,' worked in about 15 lbs. of honey and comb).

Special District Prizes.—Largest, best, and most attractive display of honey in any form, from any one of the districts in the county of Gloucestershire—1, Cheltenham district, 455 lbs.; 2, Gloucester, 301 lbs.; 3, Winchcombe, 184 lbs.

Cottagers' Classes.—Best bar-frame hive made by a cottager, a member of the Gloucesterehire Bee-keepers' Association, who is not a joiner or carpenter by trade—Mr. F. W. Shearman, Dursley. Largest, best, and most attractive display of honey, in any form or forms.—Mr. J. J. Smith, Beckford. (This competitor showed 85 lbs. of honey, and also a wasps' nest, perfect, under a case.) Best 6 1-lb. sections of comb honey—1, Mr. D. Sheppard, Winchcombe; 2, Mr. J. J. Smith; 3, Mr. A. Jones, Gloucester. Exhibit of run honey in glass jars, not less than 6 lbs.—1, Mr. Samuel Martin, Great Winchcombe; 2, Mr. D. Sheppard; 3, Mr. Wm. Harris, Winchcombe.

In a smaller tent, adjoining the one devoted to exhibits, Mr. E. J. Burtt gave illustrations of manipulating with live bees.

HANTS AND ISLE OF WIGHT BEE-KEEPERS' ASSOCIATION.—SOUTHAMPTON SHOW.

This Association held its chief Annual Honey Show upon Saturday and Monday last at Southampton as usual in connexion with the Royal Horticultural Society of Southampton. In consequence of the heavy outlay incurred last year at the several shows held within the county the executive of this Association had wisely decided upon a policy of retrenchment, and the schedule only extended to one third of the prizes offered last year when H.R.H. the Princess Beatrice attended to distribute the prizes.

As a consequence this show was in some respects very much smaller—a much smaller marquee being employed, and the exhibits in the hives and appliances classes being, in fact, conspicuous by their absence. There were no entries at all in Class IV. for general collections, and it seems likely the offer of prizes will not be repeated in this class, as it was generally felt the show, as a whole, did not suffer in consequence. But in the hive classes it is not a little remarkable there were only two entries for cottagers' hives, and even one of these was not forthcoming, so that prizes went literally a-begging.

But if the hive-manufacturers were not forthcoming the bee-keepers themselves mustered in a manner hitherto unknown in even so well worked a county as Hants; and although upon the occasion of the royal visit last year a truly magnificent exhibition of honey, &c., was staged, a belief was generally expressed that the show this year, as regards honey, was even finer. There were only five classes proper to honey, and the entries for these numbered no less than ninety-one, Class XI. (for one pound sections) staging as many as twenty-seven exhibits. The task of the judges was, in fact, herculean, for with hardly an exception every section and bottle was of first-rate quality, and we fear many exhibitors who came with a conviction that they could not be beaten went home disappointed.

Although the judging of honey is amongst the most difficult of tasks, and there exists so great a diversity of opinion on the subject, it must have been some consolation to disappointed exhibitors to find the Hants B. K. A. had secured the services of Mr. W. N. Griffin, than whom it would be difficult to find one more learned in the subtle variations of different honey samples. Of course there was some heart-burning, in one or two instances audibly expressed; and as the judges had to do their work whilst exhibitors were still staging their goods in other classes it was unfortunate that these did not always understand that judges' comments should not be overheard or listened for.

It is worthy of note that the Hants B.K.A. has for some time instituted a regular class for honey-comb designs, following the example of the Scottish bee-keepers, and we think the system might well be followed by other county associations. Now that it is known that Hants will regularly give premiums for such, bee-keepers have an opportunity of exercising their ingenuity in this direction, with a prospect of recognition; and there can be no doubt that these designs attract more attention from the general public and are more generally admired than anything in the Shows. It may be that a 20-lb. super worked in the letters spelling *Jubilee* is not so remarkable as a 1-lb. section, but on the other hand it draws attention to the really wonderful control we now have over our bees, and often secures a wealthy purchaser for the whole, who otherwise would have been content with the humble section.

In the 'Inventions' class Mr. Woodley's tin section-cases were properly awarded the highest honour the Hants Association gives, viz., the Special Diploma, as marking the most valuable invention of the year; and Mr. Fry of Bishop's Waltham, for his aerated honey drinks, and Mr. Darvill of Reading for his honey sweetmeats, were also

specially honoured. Mr. Griffin displayed his 'Honey dubbing,' but as extended trial of this is necessary to prove its usefulness, it was felt a medal could not now be awarded. We understand, however, that it is to be well tested in the Highlands this autumn, so that Mr. Griffin may hope for the honour upon a future occasion.

As usual the exhibits of Hampshire bees-wax were of exceptional merit, and Mr. Allen Broom is to be congratulated upon his method of making it more generally marketable. He displayed a number of small cakes moulded from egg cups which were retailed at 2*d.* each, and we understand he was successful in clearing a good profit upon the number he sold. The silver medal for the best home-made hive was carried off by Mr. Arthur Stephens, gardener to E. H. Beilairs, Esq., for a thoroughly well-made serviceable hive, Mr. J. J. Candey of Landport being awarded the bronze medal.

Annexed we give the list of awards:—

Open to All England.

Class I. For the best 24 lbs. of super honey, in sections not exceeding 2 lbs. each.—1st, silver medal, W. Hunt; 2nd, bronze medal, W. Woodley; 3rd, certificate, H. W. West. II. For pure extracted honey put up in the most attractive mode for purposes of sale. The exhibits to consist of 12 lbs., in vessels not exceeding 2 lbs. net.—1st, 10*s.*, W. Woodley; 2nd, 5*s.*, J. J. Candey; 3rd, 2*s.* 6*d.*, W. Hunt. III. For the best design in honey-comb, worked by the bees.—1st, 10*s.*, W. Woodley; 2nd, 5*s.*, A. Privett; 3rd, 2*s.* 6*d.*, J. J. Candey. IV. For the largest and best collection of hives and appliances applicable to modern bee-keeping (no two articles alike, and honey excluded from the exhibit. No entries. V. For the best Observatory Hive, to be exhibited stocked with bees and queen. No entries. VI. For the best and most complete Bar-frame Hive, price not to exceed 20*s.*—1st, 10*s.*, T. Tanner. No other awards. VII. For the best Cottager's Hive, price not to exceed 10*s.* 6*d.*—2nd, 5*s.*, T. Tanner. No other awards. VIII. For the best section rack prepared for putting on the hive.—1st, 10*s.*, T. B. Blow; 2nd, 5*s.*, T. B. Blow. IX. For any recent invention or inventions calculated to be of use to the bee-keeping industry.—1st, Special Diploma, A. D. Woodley; 2nd, S. Fry; 3rd, G. Darvill; highly commended, W. N. Griffin.

Open to Members residing in Hants, or within three miles of the boundary lines.

X. For the best 12 lbs. of super honey, in sections not exceeding 2 lbs. each.—1st, silver medal, E. J. Ainsley; 2nd, bronze medal, Rev. P. P. Izard; 3rd, certificate, W. Hunt and C. Richmond; highly commended, Rev. W. E. Medlicott. XI. For the best 12 lbs. of super honey, in sections not exceeding 1 lb. each.—1st, 1*l.*, T. Giles; 2nd, 10*s.*, W. Hunt; 3rd, 5*s.*, Rev. W. E. Medlicott; highly commended, E. Ainsley; commended, G. Horner. XII. For the best 12 lbs. of extracted honey, in 1 lb. or 2 lb. vessels.—1st, 10*s.*, J. Dauncey; 2nd, 5*s.*, J. Candey; 3rd, 2*s.* 6*d.*, E. Russ; highly commended, Rev. P. P. Izard. XIII. For the best 12 lbs. of extracted honey, in 1 lb. or 2 lb. vessels, for cottagers and artisans only.—1st, 10*s.*, A. Stephens; 2nd, 5*s.*, G. Holley; 3rd, 2*s.* 6*d.*, A. Broom; highly commended, G. Horner. XIV. For the best sample of bees' wax, weight not less than 2 lbs.—1st, 10*s.*, W. Burgess; 2nd, 5*s.*, Mrs. Burgess; 3rd, 2*s.* 6*d.*, A. Broom. XV. For the best home-made hive, the work of an amateur (not being a carpenter and joiner), cost of material to be stated.—1st, silver medal, A. Stephens; 2nd, bronze medal, J. J. Candey; 3rd, certificate, G. Isaac.

HANTS AND ISLE OF WIGHT BEE-KEEPERS' ASSOCIATION.

Swanmore Branch.

The second annual exhibition of honey, bees, &c., took place on Wednesday, July 27th, at Holm Oak, Bishop's Waltham, in connexion with the Bishop's Waltham Horticultural Society's Annual Show. There was a capital display of honey and bee appliances in the tents set apart for the purpose. The exhibition, consisting as it did of one of the very best displays of honey we have ever seen, amounting to nearly 9 cwt., shows that the branch is doing an immense amount of good in inducing the cottagers to take an interest in the rearing and proper treatment of bees.

Mr. A. Privett had a capital show of bee appliances and honey in his tent, and Mr. S. Fry staged a good display of his celebrated honey drinks and syrups; Miss Myers, of Swanmore House, exhibited a large and varied collection of bee flora—the sources from which bees derive their sustenance and procure honey—and for this she was deservedly awarded a special first prize. The other prizes were given by the judge as follows, the judge being the Rev. F. S. Sclater:—

Class I. For the best 12 lbs. of super honey, in sections of 1 lb. and not exceeding 2 lbs. each, presented by Mrs. Myers—1, C. Richmond, Swanmore; 2, Rev. W. E. Medlicott, Swanmore; 3, Edward Ainsley, Swanmore. II. For the best 12 lbs. of extracted honey in bottles of 1 lb. or 2 lb. each, presented by W. H. Myers, Esq., J.P. (President of the Branch)—1, Mr. H. W. West, Swanmore Park; 2, Miss Myers, Swanmore House; 3, Mr. A. Privett, Bishop's Waltham. III. For the largest and best display from one apiary, comb and extracted—1, Mr. H. W. West, a bronze medal and 10*s.*; 2, Mr. W. Candey, Botley, certificate and 5*s.* IV. For the best super worked on the top of a straw skep (cottagers and artisans only), given by the Misses Goodlad—1, F. Sparksman, Bishop's Waltham; 2, F. Quintin, Corhampton. V. For the best single comb taken from a straw skep (cottagers only), presented by the Rev. W. E. Medlicott, hon. treasurer—3, J. Scorey, Corhampton. VI. For the best 12 lbs. of super honey in sections of 1 lb., not exceeding 2 lbs. each (cottagers only)—1, J. Griffin, Bishop's Waltham; 2, C. Nicholson, Preshaw. VII. No entry. VIII. For the best and strongest skep of bees not being a swarm of this year—1 and 2, J. Scorey; 3, E. Singleton, Swanmore. IX. For the best 6 lbs. of super honey (cottagers only)—1, C. Nicholson; 2, J. Griffin. X. For the best 6 lbs. of super honey (confined to members who only possess one hive)—1, E. J. Ainsley, Swanmore; 2, Miss Bessie Martin, Swanmore; 3, W. G. E. West, Swanmore Park. XI. For the best piece of pure bees' wax not less than 2 lbs. in weight—1, Mr. H. W. West; 2, Mr. G. Homer, Swanmore. XII. For the best piece of pure bees' wax, weight not less than 2 lbs. (cottagers only)—1, F. Sparksman; 2, T. Quintin.

The best thanks of all were heartily conveyed to the judge for the very satisfactory and painstaking way in which he got through an arduous task, and to the B. B. K. A. for its kind assistance in sending down a judge free of charge.

MONMOUTHSHIRE BEE-KEEPERS' ASSOCIATION.

The Caerleon Horticultural Society held their annual exhibition on July 21st. One of the novelties of the show was the bee exhibition of Mr. W. Williams, Round Table Apiary, to whom was also awarded an extra prize and a very highly commended card. A pretty honey-comb had been worked out by the bees, the design being the figures 1887, and the various combs displayed the processes by which the honey is worked. At his apiary Mr. Williams has twenty-one stocks, twenty of which are on the new principle, whilst one is kept on the old to show the marked difference between the two. These stocks are capable of producing with careful and proper management no less than 1000 lbs. of honey during the season. At the flower show the proprietor had a swarm of bees together with the queen and all her attendants, the sight of which proved exceedingly interesting.

EAST LOTHIAN BEE-KEEPERS' ASSOCIATION.

This Association held their bee and honey show on the 9th of July in Aimesfield Park, Haddington, in connexion with the County Agricultural Show. This being the first bee-show held in the county, and too early in the year for this district, there was not a very large display. The attendance during the day was large, admittance being free. Messrs. Pringle, Copath, and Mason, Dalkeith, officiated as judges. List of awards:—

Class 1.—For the best twenty-one 1-lb. sections: 1, Mr. Wood, Whitekirk; 2, Rev. Mr. Kerr, Dirleton. Class 2.—For the best super of comb honey: 1, Mr. Wood, Whitekirk; 2, G. D. Clark, Kirklandhill; 3, Mr. Taylor, Haddington. Class 3.—For the best collection of appliances: 1, Rev. Mr. Kerr; 2, Mr. T. Robertson, Westbarns. Class 4.—For the best observatory hive stocked with bees: 1, Rev. Mr. Kerr; 2, Mr. G. D. Clark. Class 5.—For the best frame-hive for cottagers: 1, Rev. Mr. Kerr; 2, Mr. G. D. Clark; 3, Mr. T. Robertson.

There were also some designs and letters wrought in comb-honey, shown by Mr. G. D. Clark, and some specimens of honey-producing flowers by Rev. Mr. Kerr.

CALEDONIAN APIARIAN SOCIETY.

The fourteenth show of this Society was held at Perth on the 26th July, and the three following days in connexion with that of the Highland and Agricultural Society.

There was a very marked improvement in every department. The exhibits were numerous, and the arrangements of the different articles, as well as their general appearance, were such as to produce a favourable impression on all the visitors. An immense quantity of honey, in sections, boxes, &c., and of very superior quality, was submitted to the Judges, who must have had very considerable difficulty in making the several awards.

The variety of implements and appliances was large, and some of the more recent were regarded with interest, notably a new patent mould for securing wax foundation in frames and sections, exhibited by Mr. Neighbour of London, but not for competition. Designs illustrative of the anatomy of the bee, and dried specimens of the flowers which it frequents, adorned the sides of the tent. Liquors, confections, and sweet cakes, in which honey is the leading ingredient, occupied a prominent place in the collection. Altogether the show was one of the best, if not the best, of the series of exhibitions for which this Society has maintained an honourable place. Much of this may be traced to, and connected with, the indefatigable zeal and industry of Mr. Bennett, the Hon. Sec. and Treasurer.

The Judges were the Rev. J. Balfour Robertson of Leswalt, Rev. A. R. Findlay, Birnam; Alfred Neighbour, Esq., London; Messrs. McNally, Glenluce, Wood, Kilmun, and Bailie Lauchland, Kilmarnock.

STRABANE (IRELAND) HONEY SHOW.

The thriving little town of Strabane, in Co. Tyrone, had its annual festival of combined Shows on the 27th and 28th of July, at which honey, hives, and bees were well to the front. Ever since modern bee-keeping was introduced into Ireland, these items have always formed part of the yearly programme at this place, but the display on Wednesday and Thursday last was superior to that of any former occasion. In honey alone there were forty-three entries, the quality and appearance of which was excellent, all produced in bar-frame hives in the immediate neighbourhood, where the old straw skep is fast passing out of use. It is in great measure owing to the encouragement afforded by this local Show that the better way of bee-keeping has taken such a firm root in the counties of Tyrone, Donegal, and Derry.

This has been a prosperous year with bees in the north-west of Ireland, one gentleman near Strabane, having but two stocks, has harvested 140 lbs., another with twenty has taken 600 lbs., while a third, at St. Johnston, has got 2000 lbs. off his forty colonies, and within a mile of the latter place there are seven bar-framists. The following is the prize-list:—

Bees.—For the best hive for observation purposes, exhibited with the queen and bees—1, W. R. Orr; 2, George Turner. *Honey.*—One super of honey, under 25 lbs., and over 10 lbs.—1, W. J. Smith; 2, J. C. Boyd; V.H.C., Thomas M'Gonagle; V.H.C., William M'Ghee; V.H.C., Lady Alexander Hamilton. Twelve sections of honey, 1 lb. size—1, James Elliott; 2, James Clarke; V.H.C., Miss Jane Clarke; V.H.C., W. J. Fulton; V.H.C., G. W. Hatchell, M.D.; V.H.C., Dr. Britton. Six sections of honey, 1 lb. size—1, James Elliott; 2, Miss Jane Clarke and H. W. Lett (equal); V.H.C., S. H. Orr; V.H.C., Dr. Britton. Twelve sections of honey, less than 1 lb. size—1, William M'Ghee; 2, S. H. Orr; H.C., George Turner. Six sections of honey, less than 1 lb. size—1, S. H. Orr; 2, George Turner. Six jars of honey, 2 lb. size—1, George Turner; 2, S. H. Orr. Six jars of honey, 1 lb. size—1, George Turner; 2, W. J. Fulton. Best hive for general use in an apiary—1, W. J. Fulton; 2, W. R. Orr. Best hive for obtaining honey in sections—1, W. R. Orr; 2, W. J. Fulton. *Special Prize.*—For the best exhibit of super honey, sectional or otherwise, produced in a bar-frame hive purchased from W. R. Orr—1, Dr. Britton.

As regards the judging it was evident that perfectly white sealing was the only point attended to; full sections, perfectly filled, and free of popholes, were nowhere, and neither consisteney, flavour, nor colour of the honey was tried, as in no instance did the judges take a section out of its ease, or taste it.

A peculiar feature among the exhibits was a large class of non-sectional supers, measuring 14 × 14 × 3, some of which *looked* particularly good. The narrow 1½ inch sections were present in another class, but the general opinion is not in their favour.

The Hon. Secretary of the Shows, Mr. W. R. Orr, deserves credit for his arrangements.

He is also a very successful bee-keeper, well deserved the first prize, won by his Jubilee hive, which is of small size, which he considers suitable for his district of country, the feature of the hive being that the super-cover also constitutes the section crate, thus simplifying the operation of tiering up storeys of section-holders.

The Show was crowded on both days, and useful lectures on bee-keeping and hive-management were given by the Rev. H. W. Lett to many inquirers and intending bee-keepers in a plain and concise manner.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts (see 2nd page of Advertisements).*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

MR. SIMMINS'S APIARY.

[1170.] If I wanted to describe in two words the *contrast* between the localities of Mr. Blow's *bee-garden*, which I visited ten months ago, and Mr. Simmins's *apiary* which I saw yesterday, I should call the former a paradise and the latter a rolling prairie. I well remember my feelings when about five years ago I made my first excursion to Rottingdean, how, between surprise and disgust, and

more and more surprise, I had a good time of it. As I rode the four miles a-top of the 'bus which, to begin with, starts from Brighton within an hour of noon (!) my mixed feelings shaped themselves into one question many times repeated, 'Whatever *could* Mr. Simmins have been thinking about?' meaningless enough to the reader till I explain that I had known Mr. Simmins when *he* lived in a paradise (I still speak comparatively) and had taken his bees regularly every autumn to the skirts of a real forest where the heather spread away as far as the bees could reach. But here was a long dusty road all ups and downs, the sea on the one side—beautiful! ah, yes, but the bees couldn't forage *there*,—and on the other side never a tree. Positively not a tree can be seen all the way, excepting only at Ovingdean, a little place which lies half a mile off the road to the left, in a hollow in the downs, there a group of trees can be distinguished by the careful observer, but it seems to have been doing its best the last fifty years or so to hide itself, and has succeeded pretty well, for I don't suppose one out of fifty passers-by has ever seen it. Near the road there were fields of waving wheat and oats and barley, as yesterday, but beyond only the bare downs, not even sheep-dotted. However, by-and-by I came to fields of sainfoin, then sighted Rottingdean down in a valley at right angles with the sea, and beyond, more sheep-forage, and sheep too, of course. Then it began to dawn on me that perhaps (!) Mr. Simmins *did* know what he was about after all, and readers of the *Bee Journal* will, doubtless, confirm the correctness of my changing impressions as to *that* conclusion. Twice have I been to see Mr. Simmins since; which brings me down to my visit of yesterday.

Rottingdean, spite of its name, has not decayed yet. It has *two* laggard busses now, and boasts, perhaps, a hundred trees, mostly grouped at the upper end of the one street, as if for company, and mostly sycamore. There is a ruined cottage, a large horse-pond, and an old-fashioned little church with nothing particular about it, except that it has a pent-house roof over the clock, which, perhaps, objects to have its face washed! The village consists of about sixty houses, all told.

Mr. Simmins is a genial man, of few words and weighty; age about thirty, tall and well built, brown hair, eyes, and beard, which he keeps well trimmed as most bee-men do. I have not heard him laugh (he seems too busy), but I saw him smile a good deal at the baby, and that is something when there are four more—children I mean, not babies. The three eldest were away, and Mrs. Simmins told me during dinner she longed to have them home again. I saw their pictures, and quite believe Mrs. Simmins.

Now I feel sure the readers of the *Bee Journal* will forgive all this personal talk, for everybody knows that Mr. Simmins never appears at the 'shows,' so I have just been showing him up a little—at home. The apiary is away from the house, and covers an extensive area, a parallelogram surrounded by a substantial seven-feet high stone wall and subdivided within by two other walls, that is to say, there are three square enclosures communicating each with each. No. 1 contains an apiary and manipulating buildings; No. 2, the factory and a waving field of melilot clover just blooming and yielding a scent which was quite new to me and very pleasant. My! how much pleasanter to the bees, they were thick upon it! No. 3, another apiary, and in it some semi-wild rabbits burrow at will.

Of the factory I shall say nothing, except that Mr. Simmins intends springing therefrom one or two real surprises in the matter of extractor, uncapper, &c., but alas! they will not be ready for this season's harvest. A new book is also on the tapis, at a popular price too. My *business* with Mr. Simmins was to buy a couple of queens. I paid 7*s.* 6*d.* a-piece for them—a Carniolan and Ligurian, the latter imported. Cyps. Mr. Simmins had sold out of. I can testify to the careful selection of my home-bred Carniolan, as also to the fertility and youth of two or three others selected from stocks while I was present for customers. The hives are scattered about in diagonal lines, though at first sight appearing to be in picturesque confusion, but nevertheless it was perfectly evident that Mr. Simmins knew each one, somewhat after the manner of a shepherd with his sheep I suppose. To me they seemed all alike. There were Cyprians crossed with Carniolans,—and Carniolans pure,—Ligurians pure and crossed with Carniolans,—an Albino (a strain of bees selected from Italians by American breeders), and several hives of Syrians, one of them just then in an awfully bad humour. The Cyprians, however, were as gentle as could be desired; we looked at several; no smoke, yet beautifully quiet; all of which had had their queens taken from them for sale and were supplied with home-raised queens on point of mating. I saw Mr. Simmins pack a six-frame stock and a three-frame nucleus for a customer. I plied Mr. Simmins with a few questions, but what with other callers and general busy-ness my information came rather disconnectedly. I really intended to 'interview' him, you know. How long have you been in the bee way, Mr. Simmins? About twenty years. Have you had any experience of foul brood? In the past I have, before I came here. How did you get rid of it? I starved it out. What do you think of Mr. Cheshire's Cure? I think it will prove effectual if you re-queen as well. Do you use apifuge? I use smoke of rotten wood. What sort of a honey season have you had? Bad, for comb especially. We have had no rain for seven weeks, but have been sadly troubled with sea-fogs; and these thistles, you see, (we were walking up the downs) will come to nothing, whereas they generally yield much honey. The wild thyme, too, has been a failure. But I depend more upon my bees at Balsdean for *honey*, that is a very fertile valley two miles further on. This is my breeding place, being isolated, nobody has any bees within mating distance, so I have it all my own way and can ensure purity. Here I told Mr. Simmins my impressions about the surrounding country, and he smiled; but then had I not just come through the delighful scenery which lies between Dorking and Brighton, *viâ* Horsham, across the Weald of Sussex, and was I not fresh from the glories of 'my own, my native land,'—mine to *look at* and to boast about,—Boxhill and Norbury, Leith Hill and Holmbury?

Good-bye, Mr. Simmins, I shall (all well) come and see you again and walk over to your *honey* factory at Balsdean.—W. Hollier, *Dorking*.

THE STEWARTON HIVE.

[1171.] In your article on the Stewarton hive you refer to the fact that in 1880 I read a paper before the B. B. K. A. on this hive and you proceed to give numerous details respecting it. Allow me to express a hope that none of your readers will be thereby beguiled—especially when they gaze on the wondrous representation of body boxes piled on each other which adorns your columns—into the purchase of a Stewarton. There is a vast difference between 1880 and 1887. Bee science has advanced by leaps and bounds in the interval. What I could conscientiously recommend in 1880, I should hesitate even to approve in 1887. The Stewarton has had its day and has done excellent work. It has taught bee-keepers the importance of storifying, of enlargement of the hive above and below with the increase of population. But of late years the same principle has been applied to the bar-framed hive and with even more satisfactory results. The enormous harvests sometimes secured in the Stewartons have been surpassed when three or four bar-framed hives have been piled one upon

another. The slides of the Stewarton cannot be compared in point of convenience to the frames of the modern hive. In dry weather they shrink and perhaps fall into the hive when you endeavour to draw them out or to put them in their place; in wet weather they swell to such a degree that it is often almost impossible either to draw them out, or to return them if you have succeeded in extracting them. The manipulation of bees, moreover, in the bar-framed hive is infinitely more easy than in the Stewarton. In point of expense the bar-framed hive of 1887 will bear comparison with the Stewarton. —E. Bartrum, *Berkhamsted, Herts.*

RE FOUL BROOD.—SPACE BENEATH FRAMES.

[1172.] I would advise 'West Kent' to remove the queen on suspicion, for we know that sometimes the disease takes possession of her and every egg she lays has the gems of disease in it. This advice I gave last year to the 'Man of Kent,' and it would be interesting to hear from him how he has fared this year after the robbing of a diseased stock by all his other stocks. I hope he will favour us with another letter on this subject. I know from experience how difficult it is for a novice to get rid of the disease, while at the same time he is using phenol the queen is producing it in every cell. Take her away, and for three weeks the disease may be stamped out by the Cheshire cure; if, however, it should appear again when the young queen begins to lay a little patience and repeated application of the medicated syrup with Mr. Cheshire's directions will effectually cure any attack.

I am very glad to see that you, Mr. Editor, are giving attention to 'space beneath frames,' for I am convinced that it is a very important subject since the adoption of a system of frames running parallel with the entrance, and many good stocks have come to grief in winter through the want of more space below the frames. It is quite a mistake to suppose that a few inches of vacant space below means draught, and many years ago when I used the old straw skep I frequently observed how much healthier and stronger these stocks were which had not time to complete comb-building in the autumn; and even in the good old time of the Woodbury hive I seldom lost a strong stock in winter, but since adopting the parallel system I regret to say the winter destruction has been great with me, and I have seen some painful sights in other apiaries; I trust, therefore, that we shall soon have a hive combining with other advantages a clear two-inch space below the frames for winter use only; and if proper attention is given to top packing we need have no fear for the safety of our bees even in such a winter as the last.—Thomas F. Ward, *Highgate.*

NOTES ON CURRENT TOPICS.

[1173.] *Four Bee-way Sections.*—As I anticipated in the *Journal*, these are a failure with me when used without separators. To be sure they are filled and sealed, and, I think, rather more quickly than when separators are used, but they cannot be glazed, nor can they be packed without bruising one another unless kept in the same order they occupied in the rack; besides, the propolis has to be scraped off four sides instead of two, and they are also much more difficult to handle without breakage.

Taking off Sections.—I take off the rack complete, place it at the back of the hive, then take out the sections one by one, and shake out the bees in front of the hive, having first placed a sloping board from the entrance to the ground. Five minutes suffice to clear a rack of twenty-one sections of every bee, and as each one is cleared it is placed in a Coleman's starch box. Scarcely any smoke is necessary, just a few puffs to send the bees down from the rack before lifting off.

Bees and Roses.—As a rosegrower on rather a large scale, and an exhibitor occasionally, having for years had some thousands of rose-trees constantly under observation, I wish to state my opinion that there is not a shadow of anything to support the supposition that bees do injury to rose blooms, that is, spoil any that would be otherwise fit for exhibition. Bees frequent roses for two purposes, *i.e.* for pollen when the honey season is about over, and when flowers are scarce, and for water which has been held by the cup-shaped flower after a shower, or has been condensed on the petals during the night. I quite agree with the opinion expressed by the writer of 'Useful Hints' that if a bee can reach the stamens of a rose bloom that flower would never stand the exhibition table.

Re-queening Stocks.—I seldom raise queens, and Mr. Webster's letter is a well-timed caution against raising them in nuclei, as at this time of the year I can get more than I want for the asking, *i.e.* condemned bees, and by keeping separate those from hives which have swarmed and casts, you can either unite the bees and queen or queen alone after having taken away the old one by any of the methods so frequently mentioned in the *Journal*. Be careful in uniting bees, it is easier said than done. They should be put together on the evening of the day they are driven, as they are then gorged, and will be accepted. If delayed until the next day, it is more difficult.

Excluder zinc.—When Mr. Simmins asks where excluder zinc can be procured, he means, no doubt, the correct size, and yet he knows better than I do that queens vary much in size, therefore to get 'the *correct* size' we must first measure our queen. The best excluder zinc that can be used in a hive is plenty of room below for the queen with a reasonable quantity of drone comb. Are we not ourselves to blame a good deal by trying to work against nature by filling our hives with all worker comb, the result being that in accordance with the natural instincts of the bees to rear drones, they fill the supers with drone-comb? Mr. Simmins tells us, if I remember rightly, that he supers on nine combs. No doubt there is a difficulty in keeping down a vigorous laying queen on nine bars. I cannot do it with our native bees. I like supering on from eleven to fifteen bars, then there is little fear of the queen ascending the supers if only some drone-comb exists in the hive. And why should we exclude drones? where is the hive that has any prosperity about it without them?

Wasps.—Are you not a little premature in proclaiming a scarcity of wasps? After long observation I have come to the conclusion that the number of queen-wasps seen in any spring is no criterion as to the abundance or otherwise of wasps in the autumn, and no reliable conclusions can be drawn therefrom. My own opinion is that, like bees, they have good and bad years, and that their abundance or scarcity depends very much on the season—a dry summer being favourable to their increase and a wet one the reverse, hence I shall not be surprised to hear they are more plentiful than agreeable in some parts of the country this autumn, notwithstanding the scarcity of queens in the spring; besides August is the month when they become so intrusive, and until then very few people notice them.

I was glad you mentioned some of this beautiful, active, intelligent, and useful creature's good qualities; it is without doubt one of the most harmless creatures in existence, seldom or never taking the offensive, indeed, unless you interfere with its home, scarcely any amount of ill usage will make it attack you. This is contrary I know to public opinion, but I don't care a rap for public opinion on natural-history matters; it is generally made up of old exploded notions, popular prejudices, and superstitions, having their origin in inaccurate observation, therefore in nine cases out of ten it is erroneous.

Wasps, like humble bees, fly at a lower temperature than hive bees, which they excel in beauty, intelligence, and courage; bees being their equals in one point, viz., untiring industry. No doubt they do much injury to ripe fruit, but then they do an incalculable amount of good to the trees by ridding them of aphis, &c. I think the injury they do to bee-keepers has been much over-estimated. I cannot recall to mind a season when they have done me sixpenny-worth of injury, and this is a great district for wasps.—F. Boyes.

CARNIOLAN BEES.

[1174.] As Carniolans are to a certain extent still on their trial against other foreign races, I would like, with the Editor's permission, to give my experiences with them, although I am only a bee-keeper of twelve months standing. Last year I commenced bee-keeping by getting two rather late swarms, and with the help of a friend I put them safely into bar-frame hives. However, I was very unlucky with them, as the queen of one swarm died suddenly soon after all drones had been killed; and the other swarm proved to be a cast, the queen of which failed to get fertilised with me. Under these circumstances I had either to let them die out or send for queens to a dealer. Well, after a great deal of debating as to what race I would go in for, I decided to go in for Carniolans, and I sent to Mr. Simmins for two of his home-raised Carniolan queens, which, with much fear and trembling, I introduced according to the Simmins' fasting method, and to my great delight I found both queens laying when I examined at the end of sixty hours. Well, both hives wintered well, and I devoted one of them to increase, and I have made six good stocks out of it besides having extracted nearly 40 lbs. and taken 15 lbs. in sections. The other hive I prevented from swarming, and up to to-day, July 25th, although this is not a very good district and the limes have been an utter failure, I have taken 90 lbs. in sections, 12 lbs. extracted from brood-combs, and there are still 21 lbs. in sections on the hive which are nearly finished. I think this is not a bad score for any race of bees, and I daresay it would have been better if the hive had been in the hands of an expert.—W. B. M., *Donnybrook, Dublin.*

CAMOMILE WEED, &c.

[1175.] I should be much obliged if you would answer me the following questions in next number of *B. B. Journal.* Two or three large fields near my apiary have not been cultivated this year, but the camomile weed has seeded itself all over them, and now the fields are one mass of the white flowers, and on hot days it is very unpleasant walking near them, as they give off an offensive smell; they also give off a very loud hum of *bees.* What is camomile honey like? Is it poisonous or unpleasant in any way? I have heard of camomile pills for indigestion; if I find my honey very objectionable I think I had better put it in small bottles and sell it as a crack cure for indigestion (camomile honey 2*s.* 6*d.* a bottle).

Is there any way of making honey *bright?* The first lot I took this year is very good flavour, very light in colour, thick, but not bright, which, of course, makes it impossible for me to show it. What makes it dull?

I wish you would use your influence against a practice which is becoming very common, viz., putting extracted honey into bottles which only hold 12 or 13 ounces and then selling them as 1 lb. bottles. I find that a Bottle Company (who seem to do a large honey bottle trade) are offenders; their (reputed) 2 lb. screw cap bottles hardly hold 1½ lbs. Why shouldn't prizes be offered for honey bottles at bee shows? Of course only those holding exactly the right amount would have a chance of getting a prize, and bee-keepers would know where to get the best bottles without writing to different firms for samples. The prize winners would do the best trade, and therefore the trade would be obliged to make their bottles the right size.

My bees have done fairly well. The clover has failed owing to want of rain. The limes are just coming out, but unless we have rain very soon, the bees will leave everything for the honey dew, which is very abundant. —E. B. Downer, *Surrey, July 4th.*

[We have had no experience with camomile honey, we presume it would partake of the qualities of the flowers, which have a strong though not ungrateful smell, and which possess tonic and stomachic virtues. Honey may be made brighter by continuous straining —Ed.]

BACILLUS MINOR.

[1176.] I am much obliged to the writer of 'Useful Hints' for his description of *Bacillus minor* in a recent issue.

By it I have been able to identify the state of one of my hives as being affected by *Bacillus minor* during the last three weeks. I knew it was not true foul brood as described in *British Bee-keeper's Guide,* and could not make out what it was. As you say there is no cure for it yet discovered, on Saturday I took out all the frames containing *any* brood—there were seven—and inserted in their places six other frames of healthy brood and a partially finished queen-cell, as there seemed a desire on the part of the affected bees to rear another queen.

The frames of brood, &c., I am going to boil down for the wax. I believe the disease to have been imported about a month ago, when I added a 'colt' to this hive to strengthen it—said colt was a stray one, from a straw skep, I suppose.

Our honey crop has been quite up to the average; no rain for forty days, which shortened the clover crop considerably.—W. H. Paxton, *Glemsford, July 23rd.*

[If you are right as to the nature of the disease you have taken very effectual measures for curing it.—Ed.]

TWO QUEENS IN ONE HIVE.

[1177.] From one of my hives a swarm issued about six weeks ago unknown to me, but I thought they appeared in greatly reduced numbers round the entrance, and I therefore took off the sections and went over the frames, when I was fully satisfied that my conjectures were right. There were two empty queen-cells and also two young queens, so I closed up again, and left them, as I thought, to the enjoyment of a battle royal. To-day I went over them thoroughly again, and took away sections. On looking at each frame separately, lo! I discovered the two queens still in existence, and all the nine frames completely covered with brood and eggs. Now my object in giving these particulars is that you may be able, if you will be good enough, to advise me whether I ought to destroy one of these, or leave them both in their glory.—S. Pratt, *Fakenham, Norfolk, July 30.*

[The bees will in due time record their preference. Wait and watch.—Ed.]

LIGURIANS.

[1178.] A great deal having been said lately in your columns in praise of Ligurian bees, I trust you will allow me to relate my first experience with them. On examining my stocks (blacks) in April last I found one queenless, and seeing an advertisement in the *B. B. J.* by Mr. Simmins of Ligurian queens, I ordered one, and success-

fully introduced her by his simple and excellent method. The hive was getting very weak, and I gave it two frames of brood from another lot. Towards the end of June the bees appeared much stronger than I had anticipated, and gave signs of swarming. The hive was a small one—ten frames. I had added a rack of sixteen sections, and they had been taken to rather reluctantly. In the second week in July I gave them a body-box, and they appeared very busy, but on the 25th instant they swarmed, not having drawn out any combs in the body-box. The brood-chamber is full of brood, but there is practically no honey; they have not even filled the small section-crate. They have worked all along, early and late, and yet seem to have but little to show for it.—HERBERT H. PRATT, *Stokeville, Stoke-on-Trent, July* 27.

[The bee enclosed in your letter was so utterly smashed that it was beyond all recognition as to race.—ED.]

Echoes from the Hives.

Beverley, July 25th.—This grand season—the Jubilee year for bee-keepers—is at last over. Bees have ceased work and killed off the drones. No rain, all parched up.—F. BOYES.

North Leicestershire, August 1st.—The honey-flow terminated rather suddenly on Sunday, July 17th, but not till the bees had secured large quantities of first-rate honey in both bars and supers. Here and there a stock is still adding a little to its stores, but, as a rule, unfinished sections are being cleared out, and their contents carried below. On the whole it has been a very remarkable season, bees starving until June 4th, and then enjoying an uninterrupted revel in plenty for a period of six or seven weeks' duration.—E. B.

Lismore, Ireland, July 28.—Such a honey season as it has been here! It has been nothing but extracting, and supering, and taking off sections, so that for the most part I have just had to lump my record. But one hive was noted, and worth noting, for it gave 110 lbs. of sections of really first-rate appearance, of which I removed sixty-three the day before yesterday. I have had four skeps inverted which have yielded me excellent returns. I put boxes over them, holding eight or nine bar-frames each, with wide flat wooden covers made weather-tight with tarred felt or calico. I was under the disadvantage of having only a very limited number of old combs, so many of the bars had to be drawn out, as I only use guide combs. Still I was able to extract from the combs three times, getting a fine lot of honey each time. One of the skeps I supered, but did not get more than eighteen perfect sections and about eight pounds extracted. I am sure for skeps there is nothing like inverting. I let them get a good lot of honey sealed before I inverted, and am going to put them back again into the old position now. If I find they are not heavy enough to go through the winter well, I will feed; but we get so much heather and ivy honey here I do not think it will be necessary. From one of my skeps I got as much honey for extracting as from a bar-frame hive of three storeys, because in the latter I was so hampered by the queen laying in each storey. Next season I shall try excluder with my doubled hive, at any rate between the second and third storeys. I found the skeps so convenient with the excluder zinc over the hole in the bar-frame super boxes; the queens never once got up, and I extracted away in peace and security. I have had great ease and comfort in the removal of my sections. I follow the plan which I observe some of your correspondents advise for glass supers. I take off the whole crate or crates in the morning with a little smoke to quiet the flying bees, and then remove each crate and place it on top of an empty hive, narrowing the door to one or two bee-spaces. Then I put on the cover of the hive, having previously stuffed the ventilating holes with paper. I also put a cloth sprayed liberally with carbolic solution over the sections. The empty hive, or hives rather (for I generally take four or five racks at a time), I place in a shady spot among gooseberry-trees, or under a tree some little distance from the hives. In three or four hours I return and find the sections empty, except half-a-dozen bees who are only too glad to be sent off homewards. All the others have made their way out through the door and go home. As I have to send off almost all my sections by rail it is very important for me to get them off quite undamaged, which is not easy to do at the hives; the bees here propolise so much. Moreover the plan is so stingless and quiet.—FANNY W. CURREY. [The grub enclosed in the queen-cell forwarded was that of a drone, and therefore interesting. Of course it would not have come to maturity.—ED.]

Dublin, July 30th.—It is a long time since you have had an echo from my hives. I had not time to look after many stocks, as my profession would not admit of it, but I again started with two hives in May last. No. 1 on five frames, the brood of which I spread to seven, and in a day or two added two frames more, making eleven frames by the end of May. By June honey was coming in rapidly, and I placed them in one of Abbott's doubling hives (10*s.* 6*d.* one), which, I consider, the cheapest and most serviceable in the market, as will be seen by results. I got *seventy-eight* 1-*lb. sections* off this hive by the end of June, and one frame of honey weighing 6¾ lbs. (which was next to impossible to extract it was so thick). Very little honey coming in since (though they have *still a crate of sections, twenty-one*, which are nearly complete from mignonette and other flowers). I keep my bees in a suburb of this city, Dublin. We are greatly burnt up, no grass, and no flowers on the lime-trees, all dropped off from the great drought. I sold all my sections at 9*d.* and 9½*d.* to grocers, but sections (1-lb.) are now retailing as low as 7*d.* per section in the grocers' shops here. Many grocers have offered as low as 4*d.* per section to country customers of theirs, so I have heard from a country friend of mine. It is thus destroying our honey market, where as high as 1*s.* per section was paid in the early season. Hive No. 2 yielded only 30 lbs. of extracted honey in frames. It was a transferred stock in May. So you see the great difference in bees (both blacks) under similar circumstances in the same locality. What do you think of stock No. 1—nearly *one hundred* 1-*lb. sections* ?—JNO. PURSER ALLEN. [A very satisfactory report, indeed.—ED.]

NOTICES TO CORRESPONDENTS & INQUIRERS.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

R. AULD.—1. *Suspected Foul Brood.*—We are of opinion, from the condition of the piece of comb forwarded, that your suspicions of foul brood have not been borne out. From several cells healthy bees were being hatched out, and the usual indications of diseased brood were not visible. Some of the brood were, however, dead, and it would be desirable to make a thorough examination. 2. *Removing Supers.*—About midday, when bees are at work in the fields, apply a carbolised clothe to the upper box, after removing the covering, or smoke, if you prefer it, to drive the few bees at home downwards, and then remove it to a room or outhouse, and, taking out each comb, brush off the bees, allowing them to fly home. Proceed similarly with the lower box. When extracted give back the combs for the bees to clean.

A WELSH BEE-KEEPER.—1. *Sugar.*—The samples of lump sugar forwarded would answer your purpose for making syrup for winter feeding. We have a preference for pearl crystallised sugar. 2. *Size of Hives.*—Consult on this point *Modern Bee-keeping* or *Cowan's Guide-book*. The size of the one mentioned has not met with approval from experienced bee-keepers. A review of *British Bee-farming* will be found in Vol. VIII., p. 181. We shall be pleased to have, at your convenience, your remarks on the 'size of hives.'

R. C. H.—*Casting out Immature Drones.*—When immature drones are cast out early in the season it is an indication that the bees require feeding; when cast out after the cessation of the honey-flow, it proves that they desire no useless mouths to feed.

K. D.—1. *Feeding Swarm.*—Your action in feeding the swarm was in accordance with the usual practice. 2. *Earwigs.*—If your stock is strong the bees will give a good account of the earwigs. These insects are very undesirable companions of bees. They do not, however, much harm to the bees; their principal object in resorting to hives is warmth. We should not recommend you to use Keating's powder.

Benton Shipping Case.—An illustration of this was given on p. 345 of Vol. XI. Modifications of it may be procured from most hive-makers.

East Kent.—1. *Drone Comb.*—We think it a great mistake to put starters only in frames at the commencement of the season; there is a desire then to raise drones; consequently, the comb built from the foundation to bottom is invariably drone. 2. *Stock Dwindling.*—Your stock has not recovered from the swarming. It will get stronger directly, as evinced by its having a large quantity of sealed brood. This applies to it if it is perfectly healthy, of which condition you say nothing.

R. Middlebrook.—*Breaking up Sections.*—Cut out of section-frame; then slice the comb across the cells close to the midrib, and drain through a piece of strainer cloth. If you have an extractor, you can pile up—after uncapping—a lot in each cage and extract.

R. S.—*Using Fermented Honey.*—Boil it, and add to every 10 lbs. a tablespoonful of solution of salicylic acid. Skim it thoroughly. Do not boil honey in the day-time when bees are flying, unless you want the house full of them.

John Haigh.—1. *Honey Wine.*—In order to ascertain the necessary gravity for this, dissolve your honey in warm water until the liquor will support an egg, the surface of which above water should equal the size of a two-shilling piece. Your wine will be very intoxicating if made with honey. 2. *Relative Sweetness of Honey and Sugar.*—Sugar itself varies so greatly in sweetness that it is difficult to make a comparison.

J. H. D.—*Condemned Bees.*—It would be very bad policy to purchase them from any one so close. The greater portion would fly back, even if you gave them brood comb. Do not try it.

Rosbercon.—1. *Uniting.*—The advice given in the book should be followed if either of the queens is known to be inferior; but if you have no choice between them you may leave them to fight it out. 2. Your swarms which have filled only three and a half frames since the end of June must have been very small or the weather very unpropitious. Unless they increase so as to cover at least five frames when crowded for the winter they are likely to die out.

E. P.—*Condemned Bees.*—You had better unite on the spot. Take one lot in the skep into which it was driven and place it, mouth up, on the ground, place another on it mouth to mouth. Lift both together and give a violent hump on the ground. Have ready your canvas and string, throw away the upper skep (now empty) and tie the bees in as quickly as possible before they have time to recover from the bump. They will require no scent or any other preventive to fighting; being without combs they will have nothing to fight for, and therefore will peaceably unite. One of the queens will be killed unless you pick one out before uniting.

Lascelles Carr.—1. *Crowding.*—When the time arrives for this operation all the brood will have hatched out, except perhaps in one or two of the centre frames. As to the outside frame containing honey, you may extract it and put the combs behind the divider for the bees to lick out, or you may preserve them in a dry, warm place to give to the bees in spring. You may with care extract honey from combs also containing brood, but it is not advisable for fear of injuring the brood. 2. *Sections not completed.*—You did right in removing the crate, which was very incomplete, but very wrong in exposing it out-of-doors, as you have probably found out by now; if you have not started robbing you are fortunate. Take it in and give the sections behind the divider in the hive, having the crate of incompleted ones on it. The emptied sections will do for next year if preserved from damp and mice. You need not fear swarming now. 3. *Manipulation in a high Wind.*—The free circulation of air no doubt prevented the bees feeling the effect of the carbolic acid cloth. A good smoker vigorously used would have been more effective and saved you some pain and the bees some lives.

T. C.—*Number of Frames to Winter on.*—This will depend on the strength of your stock when you prepare it for winter. The frames of autumn should be reduced until those left are crowded with bees. If you can have seven frames full of bees, they should have about 20 lbs. of honey to subsist upon. It is advisable to cut winter passages in the comb about three inches from the top of the frame, for the bees to pass through.

T. D. S.—1. *Drone Eggs.*—We never knew a case of a queen being reared from an egg laid in a drone-cell, but have witnessed repeated attempts of bees when in despair to raise queens from *drone* eggs. 2. *Clearing a Bell Glass.*—The best way to clear a bell glass of bees is to remove it from the hive on a fine day when the bees are at full work and to place it in a dark room, leaving the door slightly ajar so that the bees may fly to the light and escape. 3. *Carbolic Solution.*—Probably you did not saturate the cloth sufficiently with carbolic solution. The cloth should be kept on the hive while manipulating and merely turned aside while raising a frame. By this means we find that the bees are far more easily manipulated than by means of smoke and are much quieter during manipulation.

J. W. J.—*Taking Boxes to Heather.*—Slightly raise the upper box from the lower by wedges, gently inserted, and pass between the two boxes a feather moistened with carbolic solution. Then lift off the upper box and place it on a piece of canvas, which must be tied or tacked to the hive to afford ventilation and prevent the escape of bees. Place another piece over the lower box and place them in a spring van and travel slowly by night.

Amateur.—*Taking Bees to Heather.*—Please refer to reply given to 'J. W. J.' Your proposed plan of fixing your frames will work well. Your frames being three years old, are sufficiently tough for transit. The honey should be extracted before removal.

J.—The comb forwarded is not affected with foul brood. The cause of the bees dwindling cannot be laid to the account of the comb.

E. Tulley.—*Old Queen.*—The cause of the gradual dwindling of your stock was that your queen was aged. There was no symptom of foul brood in the piece of comb forwarded.

Received from a correspondent a section of honey, which, having broken away from its attachments during transit, must have been a sad trouble to the Post-office authorities. The flavour of the honey is the reverse of agreeable. It has been contaminated by being mixed with honey-dew. Though not fit for humans, it will not affect injuriously bees.

Received from Mr. J. Walton a bottle of extracted honey. We found this, for consistency and flavour, a specimen of what good honey ought to be.

Show Announcements.

Giving Name and Address of Secretary, Date and Place of Show, Date of Closing Entries. Terms: Three Insertions and under, Two Shillings and Sixpence; additional insertions, Sixpence each. No charge made to Associations whose Shows are announced in our general Advertising Columns.

August 11.—Taunton Flower Show, at Vivary Park, Taunton, Somerset. Entries close August 8. Hon. Sec., W. B. Maynard, 5 Hamnet Street, Taunton.

August 12.—Maer Fête and Honey Show. Entries close August 5. John R. Critchlow, Hon. Sec., Maer Farm Newcastle, Staffs.

August 9, 10.—Irish Bee-keepers' Association at Southill Gardens, near Dublin. Entries close August 2. Hon. Sec., Henry Chenevix, Blackrock, Dublin.

August 14.—Handbridge, Chester St. Mary's Ho ticultural Show. W. E. Little, Hon. Secretary, Eastgate Row Chester.

August 16-17.—Wilts County Show at Salisbury. Hon. Sec., Rev. W. E. Burkitt, Buttermere Rectory, Hungerford.

August 24.—Lancaster Agricultural Show. W. Liddell, Hon. Secretary, Dale Street, Lancaster.

August 31-Sept. 3.—Royal Manchester and Liverpoo Agricultural Show at Manchester. W. Lees McClure, Hon. Secretary, The Lathoms, Prescot, Lancashire.

Business Directory.

HIVES AND OTHER APPLIANCES.

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BLOW, T. B., Welwyn, Herts.
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BURTT, E. J., Stroud Road, Gloucester.
EDEY & SON, St. Neots.
HOWARD, J. H., Holme, Peterborough.
HUTCHINOS, A. F., St. Mary Cray, Kent.
MEADHAM, M., Huntington, Hereford.
MEADOWS, W. P., Syston, Leicester.
NEIGHBOUR & SONS, 149 Regent St. & 127 High Holborn.
STOTHARD, G., Welwyn, Herts.
WEBSTER, W. B., Wokingham.
WOODLEY, A. D., 26 Donnington Road, Reading.
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FOREIGN BEES AND QUEENS.

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BALDWIN, S. J., Bromley, Kent.
BLOW, T. B., Welwyn, Herts.
BENTON, F., Munich, Germany
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SIMMINS, S., Rottingdean, near Brighton.

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LYON, F., 94 Harleyford Road, London, S.E.
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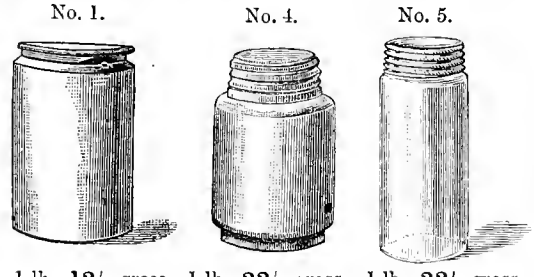

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NORTH-EAST OF IRELAND BEE-KEEPERS' ASSOCIATION.

THE FOURTH ANNUAL SHOW of HONEY, BEES, HIVES, & BEE-KEEPERS' APPLIANCES will be held in the Y.M.C.A. Hall, WELLINGTON PLACE, BELFAST, on FRIDAY, 19th AUGUST.

Entries close 12th August.

Schedules and Entry Forms can be had on application to PAUL M'HENRY, Linen Hall, Belfast; or SAMUEL CUNNINGHAM, Glencairn, Belfast.

THE
BRITISH BEE JOURNAL

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Editorial, Notices, &c.

TO CO-OPERATIVE SOCIETIES.

A National Co-operative Flower Show will be held at South Kensington on August 23rd, two prizes are offered for honey, which are open to members of co-operative societies only. Space free of charge will be granted for the exhibition of appliances relating to bee-keeping; intending exhibitors should write to Mr. W. Broomhall, Secretary, 1 Norfolk Street, Strand, W.C.

CONDEMNED BEES.

(*Continued from p.* 332.)

While the number of advanced bee-keepers who seek to rescue condemned bees from their fate increases, the number of bee-keepers of the old smotheration school, thanks to the good work done by the various Associations, steadily decreases, and thus as the demand increases the supply is reduced. Nevertheless, there still remain numerous bee-keepers, especially in remote country places, who have either not heard of the way to take their bees without killing them, or from ignorance of the best way to make use of them, or from prejudice or want of time, still continue to 'put them down,' and these should be carefully sought out, both for the sake of obtaining the bees and to teach them how to avoid their errors in the future. It is next to useless to try to find condemned bees in the immediate neighbourhood of large towns, in the suburbs of which some one most likely resides who makes a practice each year of seeking out and taking the bees. Lengthy excursions should be taken and inquiries made as soon as possible, or it may be too late for this season; and to avoid carrying the necessary implements about, perhaps fruitlessly, it is better to seek the bees one day, and, having found them, make an appointment to come at some future time to take them. It often happens that the existence of a few skeps may be found by watching for bees on the wing and noticing their flight. If brisk and rapid they are going from home; but if laden and homeward-bound the flight will be heavier and nearer the ground. Notice the direction of homeward-flying bees, and if a cottage is seen in the line of flight inquire at it.

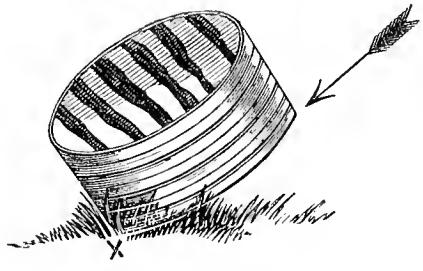
Some difficulty is occasionally experienced in obtaining permission to take the bees. There may be some prejudice existing, such as that 'bad luck' would follow. Cottagers cannot at first understand what use the bees can be to any one; they often say it is better to kill them right out than to let them starve—which opens the way for a short lecture. Then, again, they think some advantage is about to be taken of them, and that they will not get so much honey as if they put them down. In some cases, unfortunately, it happens that some one having in a previous year undertaken the task without adequate experience has made a mess of it, and perhaps set the bees all round robbing and fighting. No one should rashly undertake to teach others until he has had fair experience. Failure on the part of one who is presumably an expert discredits future visitors on the same errand. A good deal of tact is required in dealing with these objections. The best means is generally to offer sixpence or a shilling for the bees, which would be useless dead.

Having found the bees and arranged to come again and take them, the question arises how to do so. Every bee-keeper who feels himself competent to take condemned bees is necessarily conversant with the method of driving, either open or close, as explained in books and exhibited at shows.

When this method is practised, however, great danger of robbing being set up is incurred. When several lots are taken at one place, towards the end the robbers become so troublesome that it is impossible to get all the bees out. As fast as the original occupants run up robbers run down to the deserted combs, and so it happens that when the skeps of comb are delivered to the owner and placed in the house, the bees among them fly about and cause great annoyance, this being a serious reason against the bees being driven as compared with being smothered, when no bees are left among the combs to cause trouble. Moreover, robbing, when once established, leads often to all-round fighting and destruction of stocks. Robbing may be prevented by closing all the stocks in the garden by pushing a wisp of grass into the entrances lengthways, so as to confine the bees but not to exclude air. In hot weather great caution is necessary not to leave the hives closed too long for fear of over-heating. If eight or ten lots have to be taken, which will occupy in driving at least

twenty minutes a lot, and in some cases longer, by the time all were done damage would most likely occur to the confined stocks, and therefore the process called 'bumping' is to be generally preferred. This differs from driving in that in driving the bees are taken from the combs, which are left in the skep, while in bumping the combs are taken from the bees and put into pans to be carried indoors, while the bees remain in the skep. Instead of occupying twenty minutes or longer, four or five minutes suffice to clear the combs of every bee, and no bees—or at any rate only a very few stray robbers—are taken indoors. This process has been several times alluded to in our columns, but as it may not be familiar to all our readers we reproduce the details with a few additional hints.

On arriving at the garden, get the owner to give you a history of the bees—as to which are stocks and which swarms—and proceed to mark them. A ready way of doing this is by stones placed upon the alighting-boards—one for a stock, two for a swarm, three for a cast, four for a virgin swarm. You will then know which queens to preserve when uniting. Now close all the entrances as described above, giving just a puff of smoke to prevent the sentinel attacking. Ask the owner for some large pans and some sacks to cover them; put a pan covered with a sack on the ground near the first stock to be taken, give a good puff of smoke, and at once lift the skep, turn it up, and give it a good bump on the ground in the direction shown by the arrow in the illustration, the × shows the point at which the skep should strike the ground.



It is important to note the direction of the blow, if correctly given the weight of the combs carries them forward and they break off close to the crown. If, however, the blow is delivered vertically on to the point marked with a ×, the combs will probably be broken up. If there are sticks through the combs, they must before bumping be either divided between the combs with a keyhole saw or a pair of strong shears, or they may be withdrawn by a pair of pincers, giving a screwing motion. Having broken the combs out, replace the skep on its stand, upside down of course, lift the combs out one by one, and having a stick laid across the skep, rest the comb on it, and with a goose-wing brush off the bees into the skep as each comb is cleared, put it into the pan and cover with the sack. When all the combs are out replace the skep right side upwards for the bees to cluster in; to hasten them, take a wing (not the same as you use for brushing off the bees), dipped in a dilute carbolic acid, and brush the whole of the floorboard with it and prop up the skep at an angle of 45° with a stick in front; the floorboard being so distasteful the bees will not loiter upon it, but join the cluster at once. The old queens may be picked out from swarms at once and the bees united to another lot, but don't leave a lot of bees without a queen or they may unite to some lot which you do not wish them to. Do not forget to remove the grass from the entrances of the stocks left before going away. When several lots have to be taken in one day it is necessary to work all day, and it is best to take those nearest home first, leave them to cluster and return over the same ground to take them away. If from only one place, the evening is the best time, as little time is lost waiting for the returning foragers.

For carrying the bees home, skeps are about the most inconvenient receptacles possible. The best way is to have some boxes made, $14\frac{1}{2} \times 9 \times 8\frac{1}{2}$ in. deep, which will just take six frames, make an entrance along the bottom of each, which close with perforated zinc. Along one edge of the top tack a piece of paperhangers' canvas, or cheese-cloth, and take with you laths cut to the right lengths for sides and ends of the boxes, and some french nails. When the bees are clustered take one lot, place the skep gently on the ground mouth up, place another lot on it mouth to mouth, lift both together, bump the lower one on the ground to shake all the bees out of the upper one into it. Have your box ready with the canvas turned back and your laths, hammer, and nails, all ready; throw away the empty skep, pour the bees out of the other into the box, turn the canvas over and nail on the laths. Carry the boxes with the canvas sides vertical and don't pack them together close, but allow plenty of air to enter. When you get home, all that is necessary is to supply alighting-boards, remove the canvas, and give six combs, which you have had already stored, as described in our last. Just put the combs in on the bees, as they feel the weight they will run up between them; put the fullest combs outside, and those not so full in the middle, open the entrance, and cover with a quilt and roof. The bees may be wintered in these boxes by placing them in larger ones with entrances and packing all round with chaff, cork-dust, or any similar warm material. The boxes must be placed upon the stands which they are to occupy before releasing the bees. This must be done in the evening, never release condemned bees in the morning. If you drive the bees, you must have as many skeps as you have stocks to take, as each lot must be left on its stand to receive the foragers. They can be brought home separately or united in twos as above.

Arrange the hives with the combs and the quilts on, place a large board sloping up to the entrance, and throw the bees on it. If the combs should not be fully stored, feed rapidly with thick syrup. All food should be sealed by the end of September. There is an additional advantage in the bumping process, viz., that as you take out the combs you can see at once if foul brood exists. Even if you should find it, it does not follow that you need

abandon the bees, but on bringing them home instead of giving the combs to them keep them confined for at least forty-eight hours, hive them by throwing them on a board, feed with food medicated with Cheshire cure, burn the canvas which covered the boxes, and either burn the boxes—which need only cost 4*d.* or 6*d.* each—or boil them in a copper of water containing carbolic acid. A *very* useful hint was contained in our last to get the combs stored with medicated food. It will do no harm even if no disease exists in any of the stocks you take. Do not omit to point out the disease to the cottager, and caution him as to not allowing other stocks to rob the honey from an infected stock, and instruct him how best to cure it. As a rule foul brood is more likely to be found in low-lying localities than on high lands.

THE BRITISH HONEY COMPANY.

The second Annual Meeting of the Shareholders of the above Company was held in Jermyn Street, on Thursday, August 4. A full report of the meeting will be found in our columns. The Balance-sheet, which had been forwarded to the Shareholders prior to the meeting, represents the liabilities and assets, with the profit and loss accounts of the year 1886. From the balance-sheet it would appear that 6119 shares have been taken up by the public, and 1622*l.* has been received on calls made thereon. The net sales of the Company for the year have amounted to 1226*l.* 11*s.* 9*d.*, on which after adding stock in hand there was a gross profit of 521*l.* 19*s.* 4*d.* The expenses of the Company show a marked diminution. In the first balance-sheet there was a debit balance of 508*l.* 6*s.* 4*d.*, this year only 134*l.* 4*s.* 2*d.* The Directors are very sanguine as to the future success of the Company, and that the object of its establishment, viz. to promote bee-keeping by the ready sale of British honey and to assist small bee-keepers to dispose of their stock, will be attained. The Directors have had numerous difficulties to contend against since the establishment of the Company, chiefly through the misapprehensions of bee-keepers as to its objects and intentions. These difficulties are gradually being overcome, and the public generally have confidence in the Company and the articles it produces. The experience of the past indicates that the Company must not look for success from the sale of honey alone, but that they must enlarge the basis of their operations by taking advantage of the powers conferred on them at the establishment of the Company. For this purpose they have during the past year been selling fancy boxes and bottles for the sale and exhibition of honey, and they have brought out a new non-intoxicating drink, to which they have given the name of 'Mella'; and as time advances and opportunities present themselves there is no doubt that there will be further developments by the Company. In the meantime we feel assured that the scope and position of the Company are getting more recognised, the desire for pure British honey is increasing, and the virtues of honey as food and medicine are more fully known.

THE BRITISH HONEY COMPANY.

The Annual General Meeting of the shareholders of the above Company was held at 105 Jermyn Street, St. James's, on Thursday, August 4th, at 4 p.m., in order to transact ordinary business, to elect two directors, and to appoint the auditor for the ensuing year. Among the audience were present the following directors and shareholders: Mr. D. Stewart (Chairman), the Hon. and Rev. H. Bligh, Dr. Walker, Mr. Zehetmayr, Mr. Otto Hehner, Mr. Henderson, and Mr. Timberlake.

Mr. Stewart, after being appointed Chairman, read the notice sent to every shareholder convening the meeting. He said they had all seen the balance-sheet, which he considered on the whole to be satisfactory, and although at present they were not doing a very extensive business, the Company was making decided progress, and there was a prospect of better times in store. The figures still showed a loss, but the loss was a very different one from that which they were obliged to record after the first year's trading. The present loss inspired them with fresh hopes and courage, and showed a continued confidence in the stability and success of the Company. They would remember that the Company was not started with the expectation that it would turn out a money-making enterprise, but more for the purpose of developing a trade for the benefit of the British honey-producer, and thus promote bee-keeping. They had comparatively small funds at command to carry out this object, and therefore it was necessary to act with great caution. They must always have a reasonably large amount in hand, so as to make advantageous purchases. As a trading community they sold to dealers, who looked for the usual trade profits, and the Company was, therefore, obliged to sell at such a price as would enable the dealers to attract customers. He thought they were gradually attaining one of the original objects of the founders of the Company, which was to develop a taste for and knowledge of British honey in competition against the foreign article, which had fallen into disfavour, partly owing to the adulteration of it, and generally because of its inferiority even when not spurious. He was glad to say that they were obtaining by degrees an extensive clientele. They did not depend on chance customers, their trade being done principally with buyers who came again and again, which showed that the produce supplied by the Company was trusted and approved of. That fact encouraged them to look forward to a time when their affairs would be in a satisfactory condition. They were enabled to turn over their capital again and again during the course of a year by means of sales and judicious purchases, and were thus working on sound commercial principles. The proportion between the income and annual expenses was not what it would be if they were dealing with a large business. The expenses need not grow *pro rata* as the business grew, which important consideration they had found out in the second year of trading. As he had already announced, two of the directors (himself and Dr. Walker) would retire from office that day, and it would be the duty of the meeting to elect two gentlemen to fill their places. The shareholders had hitherto shown confidence in the management by re-electing the retiring directors, and by allowing the Board to carry on the work of the Company in its own way without interference. The shareholders knew in many ways, from the columns of the *Bee Journal*, and from friends probably, how the work of the Company was being carried on, and he was happy to say that the directors had had no inquiries of a kind which betrayed any want of confidence in the management. It was for the shareholders to determine whether the retiring directors should be re-elected, or other gentlemen be appointed to take their place. Any shareholder could propose any one he chose for election. With regard to the auditor, it would be necessary to elect a gentleman for that

position, owing to an unfortunate death which had occurred since the last meeting. They had had the benefit of the services of the auditor of the present balance-sheet, who had done his work very well indeed; and it would be proposed to appoint him to the post. In the temporary absence of the Secretary (Mr. Huckle), he wished to say how well satisfied they were with the way in which he had fulfilled his duties. He was always at his post, and always industrious in the performance of his duties. He begged to move, 'That the balance-sheet as issued to the shareholders be accepted.'

The Hon. and Rev. Henry Bligh seconded the resolution with great pleasure, and regretted that he had not been able to devote as much time to the Company during the past year as he could have wished, owing to the many engagements which demanded his attention.

Mr. Otto Hehner congratulated the directors on the highly satisfactory balance-sheet they had presented when compared with that of the previous year. The first year's financial statement showed (he was speaking from memory) sales to the amount of 800*l.*, on which a profit of 90*l.* was made, which represented about ten or eleven per cent; while in the balance-sheet before them the total sales amounted to 1226*l.*, with a gross profit of 521*l.*, which meant upwards of forty per cent. He could not understand how it was possible there could be so much variation in the rate of percentage on two different year's profits.

The Chairman said there were several minor matters which affected the gross profits of the past year. The principal cause, however, of the increased rate of profits was that towards the end of the previous year's accounts the Company made a large purchase of honey at an exceptionally low rate. That purchase came into stock. The prices during the past twelve months had kept up to a good average, and thus a very large profit was realised on that one consignment, which was an excellent quality of honey.

Mr. Timberlake explained as an additional cause for the increased rate of profits that during the first year they had used nothing but bottles, whereas now they used stone packages. The former cost 18*s.* per gross, while the latter could be obtained at half that amount.

Mr. Hehner asked question in reference to the item of petty cash, which was satisfactorily explained; and Mr. Henderson suggested that the Annual Meetings of the Company should be held earlier in the year.

The Chairman assented to the proposition, and mentioned March or April as a suitable time for bee-keepers. He explained that the delay on the present occasion had arisen partly in consequence of the death of their late auditor early in the year.

The resolution was carried unanimously.

Mr. Henderson moved, 'That Mr. Stewart and Dr. Walker be re-elected on the Board of Directors.'

Mr. Hehner seconded the motion, which was carried *nem. con.*

The Chairman moved, 'That Mr. Arthur Kenworthy be appointed auditor to the Company for the ensuing year.' That gentleman had given great satisfaction to the Board, and he thought had also acted in the interests of the shareholders, whose servant he was.

Mr. Henderson seconded the resolution, which was passed without opposition.

The Chairman thanked the meeting for his re-election, and assured the shareholders that his best energies would be devoted to the prosperity of the Company. The position was by no means a sinecure, but entailed a considerable amount of anxiety and loss of time. Nevertheless, whilst he saw a prospect of success he was glad to continue the work, and he thought the shareholders might rely on the directors faithfully discharging their duties. He was grateful to bee-keepers generally for the way in which they had supported the Company from its commencement, which had gone far towards promoting bee-keeping and developing the honey industry.

Dr. Walker also expressed thanks for his re-appointment on the Board, and quite agreed in the Chairman's remarks concerning the arduous nature of the duties entrusted to the directors. He said there were several definitions of the word 'sinecure,' two of which were, 'plenty to receive and nothing to do,' and 'plenty to do and nothing to receive.' He thought the office of director must be classed in the latter category. (Laughter.) The work was of an anxious and responsible character, but he was pleased to place his services at the disposal of the Company. It must be borne in mind when considering the financial position of the Company that at present their task was an uphill one, for they had to contend against the large amount of pure foreign honey imported, and also against the large quantity of honey in the market which was perfectly innocent of bees. The public did not know much about honey, and it was wonderful how they could be imposed upon with glucose, which was often nothing but starch made out of old pawn-tickets and sulphuric acid. (Laughter.) Last year the Company had carried out some experiments, and produced a new honey drink, for which they had been awarded a silver medal at the Newcastle Show. He hoped the new venture would be a success. The drink was a pleasant one, and not too sweet.

Mr. Hehner proposed a cordial vote of thanks to the directors of the Honey Company, which he considered they richly deserved, because their work was of a very onerous character, for which they received no remuneration. They were trying to benefit the whole bee-keeping community of the country, and in the carrying out of such object were necessarily doing their best for the shareholders.

Mr. Henderson seconded the motion, which was unanimously carried.

The Chairman gracefully acknowledged the compliment on behalf of himself and his co-directors. They were quite content to do the work so long as they received the confidence and support of the shareholders. He lived in London, and consequently his expenses in relation to the Company were trifling compared to those of the other directors, who often had to come to town specially in regard to the Company's affairs.

The minutes of the meeting were then read by the Secretary, and signed by the Chairman, after which the proceedings closed.

ASSOCIATIONS.

THE LEICESTERSHIRE AGRICULTURAL SOCIETY.

The annual show of this Society was held at Ashby-de-la-Zouch on July 28th and 29th in grounds belonging to the celebrated Ivanhoe Baths, in close proximity to the town and the railway station. The saline baths are said to be most beneficial in cases of chronic rheumatism. Ashby is purely an agricultural town of between seven and eight thousand inhabitants. There is a fine old castle standing in a commanding position, which has the reputation of never having been taken, of which there are fine views from the high ground on the opposite side of and looking over the town.

The Leicestershire Bee-keepers' Association, which is in affiliation with the British B.K.A., held its annual show in conjunction with the Agricultural Society, whose catalogue contains the schedule of prizes offered for bees, honey, hives, &c.

The show of honey at Ashby was of a very superior quality with but few exceptions, particularly the honey in bottles and jars. The comb honey in sections was good for the season, but here, as at most of the shows

this year, the sections are not so well filled as usual, there being popholes in nearly all the corners.

The exhibition of hives and appliances was good, although not a large one. In the best collection Mr. Meadows, of Syston, near Leicester, obtained first prize. In addition to the hives he had several extractors, wax extractors, syrup cans, honey ripeners, feeders and smokers. The tin ware was all well made, good, and useful. His patent Raynor extractor, as now shown, is unquestionably the best and cheapest in the market: it is simple and free from the fixed cages that were once thought necessary, giving plenty of room, so that frames can be turned in the extractor without taking them out as was the case with the older patterns. He also exhibited some of Mr. James Lee's *patent frames and sections*, which excited a good deal of attention, which, from their strength, the ease with which they are put together and the foundation is fixed, in addition to other good points, must come into general use, and if produced at the same cost, will, we think, in time supersede all others. Mr. C. Redshaw, of South Wigston, Leicester, was awarded second prize for a very good exhibit of hives, extractors, &c.—a very useful assortment of appliances generally. In the class for best hive complete for 10*s.* 6*d.*, Mr. Meadows took first with a good and cheap hive. Mr. C. Redshaw took second; the third prize was withheld, the judge pointing out that the frames in the other hives were loose and would be liable to crush the bees, and generally were not up to the mark.

The following is the list of awards:—

For the best stock of bees of any race exhibited living with queen in an observatory hive—1, Mr. W. P. Meadows, Syston, 20*s.*; 2, A. Cooper, Ashby, 15*s.* For the best exhibit of super honey in 1-lb. or 2-lb. sections—1, C. Foxon, Croft, 20*s.*; 2, F. Berry, 12*s.* 6*d.*; 3, Rev. N. Gresley, Netherseale, 7*s.* 6*d.* For the best extracted or run honey in glass jars—1, Mrs. Rippin, Waltham, 20*s.*; 2, Miss Chester, Waltham, 10*s.*; 3, Rev. M. A. Thompson, Thistleton, 5*s.*; highly commended, Mr. Ball, Waltham. For the best twenty-four 1-lb. sections of comb honey—1, W. P. Meadows, Syston, silver medal; 2, Mr. Ball, Waltham, 10*s.* For the best run or extracted honey in twelve 1-lb. jars—1, Mrs. Rippin, Waltham, bronze medal; 2, Miss Chester, Waltham, certificate and 5*s.* For the best frame-hive with arrangement for summer and winter. Price not to exceed 10*s.* 6*d.*—1, W. P. Meadows, Syston, 15*s.*; 2, C. Redshaw, South Wigston, 10*s.* For the cheapest, neatest, and best super for harvesting honey in the comb—1, C. Redshaw, South Wigston, 5*s.*; 2, Turner & Son, Radcliffe, 2*s.* 6*d.* For the cheapest, neatest, and best show-case for sections—1, C. Redshaw, South Wigston, 7*s.* 6*d.*; 2, W. P. Meadows, Syston, 5*s.* For the best collection of bee appliances—1, W. P. Meadows, Syston; 2, C. Redshaw, South Wigston.

Great credit is due to the Secretary, Mr. Ball, of Waltham, for the general management of the show and the manner in which the exhibits were staged, when we consider that he was unable to unpack anything over night, the carpenters *not* having fixed the tables when he left the ground at eleven o'clock, and had to be put up during the night. Everything was properly staged and all ready, so that the judging was finished and the awards fixed to the exhibits in good time.

Mr. John M. Hooker acted as judge, and examined and passed as a third-class expert Albert Henry Windsor, of Netherseale, near Ashby, who is a pupil teacher of eighteen years of age, and we understand he is a gentle and good manipulator and promises well.

WARWICKSHIRE BEE-KEEPERS' ASSOCIATION.

The eighth exhibition of bees, honey, bee-furniture, and practical apiarian manipulations, promoted by the Warwickshire Bee-keepers' Association, was held on Tuesday and Wednesday, August 2nd and 3rd, in conjunction with the Warwickshire Agricultural Society's Show at Sutton Coldfield. The exhibition was a very good one, notwithstanding the non-delivery of many exhibits. The prizes were distributed by the Mayoress (Mrs. Stone), assisted by Lord Leigh (President of the Association), the Mayor (Alderman J. B. Stone), and others. The following was the prize-list:—

Bees: (1) Ligurians or other foreign: 1, Abbott Brothers, Southall. (2) English bees: No award. Hives: (1) For the best and most complete hive on the moveable comb principle: 1, Abbott Brothers, Southall; 2, C. Redshaw, S. Wigston; 3, S. J. Baldwin, Bromley. (2) For the best and most complete hive on the moveable comb principle for cottagers' use: 1, Abbott Brothers; 2, A. T. Adams, Crick; 3, Abbott Brothers; C. Redshaw was commended. (3) For the best frame-hive for general use, the work of an amateur or cottager being a member of the Association: 1, C. E. Harvey, Yardley; 2, W. Alliband, Claverdon; 3, T. Grosvenor. Supers: (1) Rack containing 1 or 2-lb. sections prepared for placing: 1 and 2, Abbott Brothers. (2) Ditto, suitable for cottagers: 1, Abbott Brothers; 2, C. Redshaw. Honey: (1) Super honey from one apiary: 1, H. Wood, Lichfield; 2, W. L. Pridmore, Hinckley. (2) Twenty-four 2-lb. sections of comb honey: No award. (3) Twenty-four 1-lb. sections: No award. (4) Twelve 2-lb. sections: 1, H. Wood, Lichfield. (5) Twelve 1-lb. sections: 1, H. Wood, Lichfield; 2, Baldwin, Bromley; 3, W. S. Pridmore, Hinckley. (6) Super honey: No award. (7) Run or extracted honey: 1, Mrs. Heath, Knowle; 2, H. Wood, Lichfield; 3, W. S. Pridmore, Hinckley. Cottagers' class. For members of the Association residing in the county not having competed in the previous classes: (1) Honey in comb, taken from one hive, without destroying bees: 1, T. Grosvenor, Knowle: 2, W. Woodward, Brinklow. (2) Twelve 2-lb. sections of comb honey: 1, T. Grosvenor, Knowle. (3) Twelve 1-lb. sections of comb honey: 1, T. Grosvenor, Knowle; 2, S. Upton, Perry Barr; 3, W. Alliband, Claverdon. Two extra prizes, open to cottagers not having taken prizes in previous years, for the best exhibition of run honey and for the best and largest collection of honey, were not awarded. Miscellaneous prizes: (1) Collection of hives and bee-furniture most applicable to present system: 1, Abbott Brothers; 2, Baldwin, Bromley. (2) Finest samples of beeswax: 1, Abbott Brothers; 2, Adams, Crick. There were no awards in the driving competition, there not being enough competitors.

HUNTS AGRICULTURAL SOCIETY.

This Society held its annual exhibition at St. Ives, Hunts, on July 26th. The old town was gaily decorated on the occasion. Flags were suspended in every street, and most of the business establishments were closed at an early hour, so that both proprietors and assistants might have an opportunity of visiting the exhibition. There were two tents on the ground set aside for the purpose of an exhibition of bees, hives, honey, &c., in connexion with the Hunts Bee-keepers' Association. A number of experiments were conducted by Mr. C. N. White, the Secretary to the Association, who has taken a great interest in its welfare. The show was a small, but, at the same time, successful one; and has rarely, if ever, been surpassed in the history of the Society. The prizes were awarded by the Rev. F. G. Jenyns of Knebworth Rectory, who remarked that the cottagers' exhibits were most creditable. The prize list was as follows:—

Bees.—I. Best specimen of English bees exhibited with their queen, in a unicomb observatory hive: C. N. White.

Hives.—II. The cheapest and most serviceable hive on the moveable-comb principle, for general use, with arrangements for taking surplus honey: 1, J. H. Howard. III. The best straw skep with floor-board and arrangements for the storing of surplus honey: 1, J. H. Howard.

Honey and Wax.—IV. Best twelve 1-lb. sections of comb

honey: 1, J. H. Howard, jun.; 2, A. Sharp; 3, J. Linton. V. Best six 2-lb. sections of comb honey: 1, F. Allen; 2, Rev. J. F. Trumper. VI. Best exhibit of comb honey (not sectional): 1, J. Linton; 2, E. Allen; 3, Mrs. Allpress. VII. Best twelve 1-lb. bottle of run honey: 1, Rev. C. C. James; 2, E. Allen; 3, J. Linton. VIII. Best sample of beeswax (in one cake, weighing not less than three pounds): 1, Rev. C. C. James; 2, Rev. H. Gee; 3, E. Allen.

Cottagers Only.—IX. Best twelve 1-lb. sections of comb honey: 1, B. Bull; 2, F. Whybrow; 3, R. W. Allpress. X. Best exhibit of comb honey (not sectional): 1, Z. Hobbs; 2, B. Bull. XI. Best twelve 1-lb. bottles of run honey: 1, R. W. Allpress; 2, B. Bull; 3, C. Colbert. XII. Best sample of beeswax (in one cake, weighing not less than three pounds): 1, C. Colbert; 2, Z. Hobbs; 3, B. Bull.

In addition to the above prizes the following from the British Bee-keepers' Association were awarded:—Silver medal for the best exhibit of twelve 1-lb. sections in the show: J. H. Howard, jun. Bronze medal for the best exhibit of twelve 1-lb. bottles of run honey in the cottager class: R. W. Allpress. Certificate for the best exhibit of comb honey (not sectional) in the cottager class: Z. Hobbs.

GLAMORGANSHIRE AGRICULTURAL SOCIETY'S SHOW.

The above show was held at Aberdare on the 3rd and 4th inst. The following are the awards in the honey classes:—For the largest and best exhibit of super honey—1, Mr. James Lewis, Plasdraw, Aberdare; 2, Mr. D. Daniel, Llwydcoed, Aberdare. For the best twelve 1-lb. sections of comb honey—1 and silver medal of the B.B.K.A., Mr. W. Williams, Blackweir, Cardiff; 2 and certificate, Mrs. Ingledew, Cardiff; 3, Mr. D. P. Davies, Aberdare. For the best twelve 1-lb bottles of extracted or run honey—1 and bronze medal, Mr. W. H. Jenkins, Exchange Buildings, Swansea; 2, Mr. E. J. Gibbins, Neath; 3, Mr. G. H. Rake, Aberdare. Mr. W. Gay, Cardiff, acted as judge and manipulator at the show. The quantity of honey staged (taking into consideration the excellent prizes—*1l.*, 15*s.*, and 10*s.*—offered for each class) was small, there being only two exhibits, about 100 and 60 lbs. for the bulk, seven exhibits for twelve sections, and four for extracted; the quality being fairly up to this year's average.

The judging, we regret, did not give general satisfaction, the prize and bronze medal being awarded for an exhibit containing at least two different kinds of honey, both in colour and flavour. It is full time that the Council of the B.B.K.A. should take up the question of judging, especially where the Association medals and certificates are to be awarded. Six of the bottles awarded the first prize at the above show were light in colour and bad slightly granulated; one of the remaining six contained true coloured honey, a light and darker shade, the remaining five were good samples so far as taste and colour were concerned. The judge may be right in his award, but we should have preferred the prize being given to an uniform sample as far as colour went, although the flavour may not be as good as the one containing several different kinds of honey. Perhaps Dr. Walker, Messrs. Baldwin, Hooker, Blow, or any of the other gentlemen that visit shows for the purpose of judging, may be induced to form themselves into a committee, discuss this matter, and establish a judging standard.

THE FARINGDON BEE-KEEPERS' ASSOCIATION.

In Faringdon and the neighbourhood there is a branch of the Berkshire Bee-keepers' Association, of which Mr. F. Burrell is hon. sec. The annual show was held on Bank Holiday, August 1st, in the Corn Exchange. There was a very choice display of honey. The greater portion was in 1-lb. sections, or 1-lb. glass bottles, the former looking remarkably clean and the latter very tempting. The judging of the exhibits was carried out by Mr. Woodley and Mrs. Currey of Reading, with the following results:—

I.—For the best six sections (not over one pound in weight): 1, 10*s.*, Mr. Levi Inwood, Uffington; 2, 5*s.*, Mr. M. Whittle, Lockinge; 3, 2*s.* 6*d.*, Hon. O. W. Craven, Ashdown. II.—For the best six pounds of extracted honey in 1-lb. glass bottles: 1, 10*s.*, Mr. L. Inwood; 2, 5*s.*, Mr. J. Goodman, Uffington; 3, 2*s.* 6*d.*, Mr. M. Whittle. III.—For the best and largest exhibit of honey from one apiary, gathered during 1887: 1, 10*s.*, Mr. F. Burrell, Faringdon; 2, 5*s.*, Mr. A. Goddard, Faringdon; 3, 2*s.* 6*d.*, Mr. F. Liddiard, Faringdon. 1, 292 lbs.; 2, 246 lbs.; 3, 238 lbs. IV.—For the best super of any description, not sections: 1, 10*s.*, Mr. L. Inwood; 2, 5*s.*, Mr. M. Whittle; 3, 2*s.* 6*d.*, Mr. R. S. Edmonds, Faringdon. V.—For the best exhibit of comb honey, not over three pounds in weight: 1, 10*s.*, Mr. W. Ilott, Woolstone; 2, 5*s.*, Mr. W. Morris, Eaton Hastings; 3, 2*s.* 6*d.*, Mr. H. Pike, Faringdon. VI.—For the best four pounds of run honey in bottles: 1, 10*s.*, Mr. H. Pike; 2, 5*s.*, Mr. E. Newman, Faringdon; 3, 2*s.* 6*d.*, Mr. W. T. Jordan, Eaton Hastings.

Mr. F. Burrell, the indefatigable hon. sec. of the Association, deserves a word of praise for the manner in which he worked to make the show instructive and amusing.

CAMBRIDGESHIRE AND ISLE OF ELY AGRICULTURAL SOCIETY.

This Society held its twenty-fourth annual show in the grounds of Jas. Crossley, Esq., Egremont House, in the city of Ely, on Wednesday and Thursday, July 27th and 28th. As of late years in addition to the numerous other departments, the Society continues that of bees, hives, and honey, and this year they have cause for satisfaction at the success attending it. The exhibits were arranged in a long shed with staging similar to that of the Lincolnshire, with the manipulating tent in close proximity, which attracted large numbers of visitors to see Mr. Baldwin's skilful operations, and hear his able and instructive lectures.

This is the Society's first visit to Ely since their introducing a bee department to their annual programme, and, as might be expected, drew a large number of bee-keepers of the surrounding neighbourhood to witness it, who no doubt would take home with them many useful hints, Mr. Peters, the Secretary, who is most anxious to see success in bee-keeping, and spares neither time nor trouble in keeping it to the fore, deserves the hearty thanks of all engaged in the work, and of the Cambridgeshire Bee-keepers' Association especially.

The various classes, ten in number, were not on the whole so well filled as might have been expected, considering the very liberal prize schedule, and competition was small, the principal prizes going to a few. In the honey classes, with one or two exceptions, the quality was very inferior. Some sections staged by Mr. M. Mason, of Gressingham, as also the whole of his extracted honey, were as fine in quality as could be desired. Some beautifully finished sections were staged by Mr. Howard, of Holme, and Mr. Drake, of Sutton, also a nice bell-glass by Mr. Geldard, of Cambridge, which secured second honours in the class for cottagers. Mr. F. Whybray, of Peterborough, obtained first prize, 20*s.*, with great credit to him.

In the hive classes Mr. Howard, of Holme, had it all his own way. His collection of hives and appliances was very good, and contributed largely to the effect of the show. The judging was entrusted to Mr. R. R. Godfrey, and who, by desire, also superintended the arrangements of the bee department.

Mr. R. A. Grimshaw, of apifuge notoriety, honoured the show with his presence, and kindly volunteered his able assistance.

THE CALEDONIAN APIARIAN SOCIETY.

We inserted in our last number a report of the Show held by the above Society at Perth, the following is the prize list:—

Bees.—Best specimen of British bees—1, W. Munn, Ardenadam; 2, W. W. Young, Perth. Best specimen of Cyprian, Ligurian, or any other foreign bees—1, William Wilson, Falkirk; 2, William Sword, do.

Hives.—Best hive for observation purposes—1, W. Munn; 2, W. W. Young; 3, W. M'Nally, Glenluce. Best frame hive—1 and 2, W. M'Nally; 3, W. W. Young. Most serviceable hive for transmission to heather—1, W. M'Nally. Best straw hives and supers—1, W. M'Nally; 2, J. D. M'Nally, Springburn, Glasgow.

Comb Foundation.—Best ten sheets made of pure bees' wax—1, W. W. Young; 2, W. M'Nally; 3, J. D. M'Nally. Best two cakes of wax—1, W. W. Young; 2, W. Sword.

Honey.—Best display of honey and honeycomb—1, W. M'Nally; 2, W. Birrell, Perth; 3, J. Edward, Fowlis, Dundee. Best two supers above 20 lbs. each—1, Sidney Roebuck, Dumfries; 2, W. Sword; 3, W. Wilson, Falkirk. Best super above 12 and under 20 lbs.—1, W. Sword; 2, Sidney Roebuck; 3, W. Wilson. Best super of honey not under 10 lbs.—1, W. Sword; 2, Sidney Roebuck; 3, W. Wilson. Best display of honey and honeycomb under 100 lbs.—1, J. D. M'Nally; 2, W. Wilson; 3, Sidney Roebuck. Best twenty-four 1-lb. sections of comb honey—1, W. M'Nally; 2, Sidney Roebuck; 3, W. Birrell. Best twelve 2-lb. sections do.—1, Sidney Roebuck; 2, W. Birrell; 3, W. Wilson. Best twelve 1-lb. sections do.—1, W. M'Nally; 2, Sidney Roebuck; 3, P. M'Whannell, Perth. Best twelve 1-lb. glass jars of run or extracted honey—1, W. Birrell; 2, W. Low, Stanley; 3, Sidney Roebuck. Heather honey, not less than 10 lbs.—2, J. D. M'Nally; 3, W. M'Nally. Best design in pure honeycomb worked by bees—1, Sidney Roebuck; 2, Harry Wood, Lichfield, Staffordshire.

Special Prizes for Ladies.—Best super above 10 and under 20 lbs.—1, Mrs. Roebuck, Dumfries; 2, Mrs. Young, Perth; 3, Mrs. Agnew, Stranraer. Best glass super of honeycomb—1 and 2, Mrs. Low, Stanley; 3, Mrs. Agnew. Best twelve 2-lb. sections of honeycomb—1, Mrs. Young; 2, Mrs. Roebuck. Best display of run or extracted honey in glass jars—1, Mrs. Low; 2, Mrs. Young; 3, Mrs. Agnew.

Comestibles.—Best liqueur or wine made from honey—J. D. M'Nally. Best cake made with honey—1, J. D. M'Nally; 2, William Sword; 3, W. M'Nally. Best collection of articles made from honey as food and liqueur—J. D. M'Nally.

Miscellaneous.—Best collection of bee furniture—1, W. M'Nally; 2, George Brown, New Pitsligo; W. W. Young. Best honey extractor—1 and 2, W. M'Nally. Best extractor or press for heather honey—1, W. M'Nally; 2, W. W. Young. Best collection of objects illustrating the economy of the bee—J. D. M'Nally. Best display of honey-producing plants—1, J. D. M'Nally; 2 and 3, W. M'Nally. Best straw hive stocked with bees—1, W. W. Young; 2, James Johnstone.

BANBRIDGE (CO. DOWN) BEE AND HONEY SHOW.

For some years the Banbridge Farming Society has devoted a special section to bees and honey, with the object of encouraging the modern improved system of bee-keeping. The Bee-tent of the North-east of Ireland Bee-keepers' Association, with lectures, and manipulation of bees in bar-frame hives and skeps, has year after year been a feature of this show. These efforts of the Committee have not been in vain, the modern hives are scattered about the district, one man in the town devotes himself to manufacturing wooden hives of the most approved kind, and at the exhibition on the 2nd inst. there was a larger number of entries of honey than on any former occasion, and all of excellent quality. The judges were Messrs. P. M'Henry and S. Cunningham, who did their work carefully and with that thorough painstaking scrutiny which evidenced them to be practical bee-keepers, who can discern a good section as well as the best on the stalls from one imperfectly filled.

The following is the prize list:—

For best stock of specimen of Ligurian or black bees, to be exhibited with their queen, in an observatory hive—1, William Morrow, Banbridge; 2, William A. Potts, Cappy, Banbridge.

For best section of honey in either wood, glass, or straw, and not less than 5 lbs. weight—1, Isaiah J. M'Cabe, Kilkinamurry, Katesbridge; 2, Thomas Gillespie, Banbridge.

For best six 1-lb sections—1, Rev. H. W. Lett, Loughbrickland; 2, Thomas Gillespie; 3, Samuel Hill, Solitude House, Banbridge.

Best six glass jars of extracted honey, not less than 1 lb. each—1, Thomas Gillespie; 2, Isaiah J. M'Cabe; 3, W. A. Potts.

There was a keen competition for the different prizes, especially in the two latter classes. Here, as elsewhere in Ulster, the old straw skep, though still to be found in remote cottage gardens, is not recognised in the show yard.

In Ireland we still support big non-sectional supers, and it was a pity to see some splendid cases of pure and luscious honey, so soon (as the owners declared) to be washed and strained, and then sold for not half of what the same in 1-lb. sections would have brought. The time has surely come for those who draw up the schedules to abolish such supers, and give more encouragement to 1-lb. sections.

About Banbridge the honey yield has this year been very good, one farmer has taken as much as 120 lbs. in sections from one stock, and another bee-keeper, with seven, has averaged 50 lbs. from each hive.

Attacked by a Swarm of Bees.—On Saturday afternoon, July 30th, an accident of a peculiar and serious nature occurred at Sidmouth. It seems that Miss Skinner, of Sid Abbey, Sidmouth, was accompanying her sister, Mrs. Groves, in a donkey-chaise for a drive, and on proceeding down All Saints' Road a swarm of bees, which came over an adjoining hedge, suddenly pitched upon the donkey's head, stinging the poor animal very badly. Miss Skinner, who was walking by the side, attempted to release the donkey from the chaise, but failed to do so, and the result was that the torture under which the animal was suffering caused it to kick violently, capsizing the carriage, Mrs. Groves being kicked by the donkey and dragged a considerable distance. Both Mrs. Groves and Miss Skinner were also severely stung, and the latter in her continued endeavours to release the animal was knocked down, the chaise passing over her. Mr. and Mrs. Reed, of Khandwa Villa, who witnessed the accident, immediately ran to the assistance of the unfortunate ladies and had them removed to their house not ten yards off. Dr. Pullin was quickly summoned, and after a short time the sufferers were removed to Sid Abbey, where the medical attendant discovered that Mrs. Groves had sustained very serious injuries, both her thighs, a rib, her collar-bone and right shoulder being fractured. Miss Skinner, although more fortunate, was very much cut and bruised about the face and head. Mrs. Groves towards evening recovered slightly from the shock to the system, and at midnight Dr. Pullin by the aid of chloroform succeeded in setting the fractures. Last evening Mrs. Groves still remained in a critical condition.—*Devon and Exeter Daily Gazette, August 1st.* [We regret to hear that the lady most severely injured has since died. An inquest has been held, and a verdict of 'Accidental death' returned. A juror thought it inadvisable to hive bees so near the highway, which opinion was conveyed to the owner of the bees through the foreman.]

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts (see 2nd page of Advertisements)*

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

OUR HONEY IMPORTS.

The value of honey imported into the United Kingdom during the month of July amounted to 1687*l*. [From a return furnished by the Statistical Office to E. H. Bellairs, Wingfield House, near Christchurch.]

EXPERT EXAMINATIONS.

[1179.] During the present season I have had quite a number of candidates to examine for experts' certificates. I have passed several and rejected others. Some of the latter ought not to have been sent up by the Secretaries of Associations, not being the sort of men calculated to be useful in the instructing others, in addition to want of experience and knowledge. In my opinion a man should be quick, intelligent, and fairly well educated before he is sent up for examination, even for (what the B.B.K.A. calls) a third-class, or, as I should prefer to call him, a *practical expert*. The time is usually very short, the examiner, frequently after a long journey by train, having acted as judge at an important county or other show, is asked, single-handed, to examine, as was my case, six candidates in the day, or rather, what remained of it.

The first difficulty that arises is that there is only one skep for all to drive, and that a swarm of the present season with tender combs and full of honey. Then the bar-frame hive is half a mile off, and several journeys have to be made this distance, as it is only fair that the candidates should not be asked to manipulate a hive that has just been gone over, and perhaps roughly handled by the last man. All this takes time, and the poor examiner must himself occupy a little in discussing the luncheon usually provided for him on such occasions.

Having pointed out some of the difficulties one has to contend with, I think it would not be too much to ask secretaries, who, I admit, at this time have much to do, that they should, in some way previously ascertain, if not from personal knowledge, from the clergyman of the parish, or from some well-known bee-keeper, or other person in the neighbourhood, if the candidate is the right sort of person to assist in instructing others, and if he would be likely from his disposition to do so, and if from his knowledge of him and his success as a bee-keeper he would be likely to pass, so that the little time at the disposal of the examiner should not be wasted when there is so much to do, and that he should be spared the unpleasant task of rejecting the candidate for his general unsuitableness and want of knowledge. Then, again, the secretaries should see that the candidates arrange, either themselves or some one for them, that skeps and bar-frame hives are provided at no great distance that their knowledge may fairly and properly be tested. In my opinion it is not advisable or fair to the candidate that the manipulations should take place in the public bee tent for more reasons than one. Remarks are frequently made by lookers-on which are not calculated to advance the object in view. Then, again, where many hives are driven, robbing is sure to commence, the bees become furious, fighting becomes general, and possibly the queen is 'balled,' and the candidate gets stung unnecessarily, and does little that he is expected to do, which, had the conditions been normal, he would probably have obtained the required number of marks in his practical work.

I am induced to make these remarks from past experience. I may also mention that on two occasions no examination took place, no bees having been provided.—JOHN M. HOOKER.

SMOKE—CARBOLIC ACID—APIFUGE—SIMMINS'S NON-SWARMING SYSTEM.

[1180.] In answer to 'E. W. P.' (1164), you think that apifuge would have more effect than smoke or carbolic fumes. Well, I for one should be inclined to doubt it. Two years ago I got some bees from a neighbour, who said they were so wicked he could not manage them. I found smoke of little use; they retreated before volumes of it, but always returned to the charge whenever the smoker was laid down. Then carbolic-acid fumes were tried, and had some effect, but were not quite satisfactory, because these bees would, under the influence of the fumes, allow the hive to be opened and some of the frames to be lifted quietly, then all of a sudden they would attack in a cloud. I still kept this breed of bees, because they were such good workers, though almost unmanageable, and dangerous to passers-by on the road near.

When apifuge came before the public, I hastened to get a bottle, and, after donning a veil, rubbed my hands and wrists with this invisible soap, and proceeded boldly to the 'wicked' hive. Gently I turned back the quilt, spread out my hands to bless them into peace and quietness, but I think there was some mistake amongst those bees, because they never stayed to feel the *pleasant* scent of apifuge. Straight they shot at face, hands, and body; and *sting!* did they not? My hands were about covered with their lancets, and then they went at my clothes in perfect madness. I didn't run, I am too well hardened for that, but wince I did, till I got a knife and cleared the back of my hands from poison-bags. Not to be beaten, I again put some apifuge on my hands, and with no better results, so closed that hive as soon as possible. That apifuge is useful in some cases I know, but, after repeated trials, I think that it is utterly useless with these particular bees. I disturb these bees as little as possible now, and when I do always using a cloth saturated with carbolic acid. I may say that these bees are crossbreds, black with just a touch of Ligurian, the queen being very black.

And now a word on Simmins's non-swarming system. I have tried it on three hives and utterly failed. No. 1 on June 1st was covering eleven frames, so I took away two full ones and put three empties in their place, and put on 21-lb. super with built-out combs. Bees commenced filling super and building in frame nearest the nest. Three weeks after I took out the combs in front and looked at them. The one next the nest was almost built and filled with *sealed* larvæ, second built out a little, the other untouched. I call that failure first. Right through the season the front combs as soon as built the least bit were thus filled. No. 2 did the same. No. 3 did what is rather uncommon, with three 21-lb. racks of sections on, and *four empty frames* in front, which the bees had never touched from the beginning of June; they swarmed on July 3rd or 4th. A friend has had a Stewarton swarm which had an empty body-box beneath it from the beginning of the year. I rather think the exceptionally hot weather created these two cases.—GEORGE D. CLARK, *Kirkland-hill, Dunbar, August 1st.*

WORKING FOR EXTRACTED HONEY.

[1181.] Just at the present time there seems to be a 'craze' among bee-keepers on the subject of comb honey production, many who have heretofore worked almost exclusively for extracted honey changing their tactics and are now advocating and talking comb honey to the exclusion of that which they formerly endorsed. I fear this is not a wise policy, for it can only result in soon lowering the price of comb honey and advancing the price of extracted, this causing an expensive changing of fixtures the second time. It seems to me that the well-balanced apiarist should produce both comb and extracted honey; and as he sees the tide swaying toward the side of the one he should go a little heavier in the opposite direction, but not enough as to throw aside all his fixtures along the line the tide is moving. We have many farmers in this locality who, when mutton and wool are low, sell out their sheep for a mere song, and go into the so-seeming more profitable business of beef and butter, paying a high price for cows in high tide, for everything in the cattle line. In a few years times change, and cattle are at low tide; beef and butter are sold for a song, while mutton and wool are now bringing a good price again. These farmers now for a second time become discontented, and change their cows for sheep, only at a great loss again. So they keep on doing in a sort of will-o'-the-wisp chase, losing money at every change. Others keep both sheep and cows, never running out of either, but in time of good prices with the flock, raise a little more from the sheep, and these again increase that herd when high prices are paid for the production along that line. In this way a steady growth is maintained, while by the other plan a downward tendency is a sure result.

As I have worked for years for both comb and extracted honey, and believing that the present time is favourable to the production of more extracted honey and less comb, perhaps I cannot do better than to tell the readers of the *American Apiculturist* how I proceed to accomplish what seems to me to be the best results. The first thing necessary in the successful production of extracted honey is a good queen to produce hosts of workers to gather the harvest. In fact, whether all realise it or not, the whole of bee-keeping centres in the queen. Without the queen it would be impossible to produce a pound of extracted honey, hence it becomes apparent that the better the queen is, the more honey we obtain. When all come to realise the great value of really good queens, we shall have taken a long stride toward successful honey production. But good queens are only of value when we surround them with favourable circumstances, thus getting large numbers of eggs laid at the right time, and causing each egg to be nourished to a perfect bee, so that we can have the bees in our colonies by the tens of thousands at the right time. Failing in this, the flowers will bloom in vain as far as filling our surplus combs with honey ready for the extractor is concerned.

But 'what are favourable circumstances?' is asked, to which I reply, an abundance of food and warmth. The abundance of food is quite easily secured in this day of bee feeders, and especially so if the apiarist has set aside the previous season, as he should, combs solid with honey which are ready to set in the hive at any time. But the warmth is not so easily secured, especially when our honey harvest comes early from white clover, which requires the getting of a large quantity of eggs laid early in the season in order to have the bees in time. Several years ago I tried artificial heat to help forward things, but after numerous experiments which resulted only in harm, I gave it up.

As soon as all the combs are filled with brood which were first given them, more are added till the hive is full of comb and brood. In adding these combs, I prefer to add two at a time, using one which is empty and one filled with honey such as spoken of above. The empty one is placed at the outside, and the full one in the centre. Before putting in the full one I break the cappings of the cells by passing a knife over it flatwise, for by this means the bees are obliged to remove the honey, and in doing so are stimulated to apparently greater activity than by any plan of feeding with which I am acquainted. As the honey is removed over to the outside empty comb, the queen fills the emptied comb with eggs, which, when hatched into larvæ, require the honey brought back by the nurse bees to feed said larvæ; and as the honey is now being carried again, activity is still kept up, and the queen now goes over and fills the comb with eggs also. In this way one hive is soon filled with eggs, brood, and bees just in time for the harvest.

Having the hive filled as spoken of, and the honey harvest at hand, or just commenced, if we wish no increase from our bees, no time is to be lost in putting on the surplus arrangement, otherwise the bees becoming crowded, may get the swarming fever. For extracting, I prefer another hive of the size of the first, but some prefer one of only one-half the depth. As to results, there is probably no great difference, but I consider it quite an object to have all hives and frames alike in the apiary. In putting on this surplus arrangement, I prefer to use empty combs if possible instead of comb foundation. I also prefer to use two large or wide dummies, one at each side, for a few days, so that one-half of the room is taken up, which leads the bees along gradually instead of thrusting a large amount of surplus room upon them at once. From experience I believe them less liable to swarm where this course is taken, for they seem to bend every energy to fill this small additional room, while, where a large amount is given at once, they are injured should it become cool; or, if warm, they swarm from being loath to enter it. As soon as the half of the hive given them is partly filled with honey, the dummies are taken out, the combs spread apart, and frames filled with foundation put between them. At this stage I would just as soon have foundation as empty combs, for the bees are now ready to work upon it, while before they were not. The time for taking out the dummies is when you see the cells being lengthened out with new comb along the tops of the combs.

How you will proceed in the future depends upon whether you wish your honey all ripened in the hive till the harvest is over, or ripened in a warm room by evaporation. Sometimes I think that honey left on the hive through the season is of a better quality than that extracted every week or so; then, again, I am not so sure about it. Of one thing I am certain, more honey can be secured with less hives and fixtures where it is extracted when the bees first begin to seal it than can be gotten by the other method.

As to the labour, there is little difference, except that when we extract often the labour comes at a time of year when we are the most crowded. To be sure the operation is gone through with oftener, but to offset this there is little or no uncapping to be done, while the honey leaves the comb more clean with less than one-half the labour in turning the extractor. If the season is warm and dry, I would just as soon have honey extracted as above as that left on the hive the season through, but if cool and damp I prefer it ripened all that is possible by the bees, and even then it is not as good as the other. In my opinion the season has more to do with the quality of the honey than the process of ripening. If we desire to extract oftener, the hive we have already added (if both contain two thousand or more cubic inches) is probably all the room the bees will need, but if left on during the season, one more and probably two will be needed. In putting on the third story, I do not use the dummies, for by this time the

weather has got so warm and the bees so numerous that they will spread out so as to occupy the whole of the extra hive. This hive should be put on when the bees have the combs in the second storey sealed along the tops of the frames, or soon after you would commence extracting if working the other way. Many say, Raise up the second storey and place this third hive between the two; but after repeated trials of both, I prefer placing it on top, for I think the bees will occupy it just as quickly if the honey flow continues, while if it from any cause should be cut off at this time or soon after, we are in much better shape in not having the honey scattered through three hives with few, if any, combs full. If a fourth storey is needed, put on the same as the third, when, after the season is over, you will begin to carry the honey to the honey-house and extract.

To get the honey off, I find it is the best way to go to a hive and blow a perfect deluge of smoke down on the bees from the tops of the combs, and as soon as the bees have run below, take off that storey, and set it on your wheel-barrow or honey cart, not attempting to get more than one storey from one hive at the same time; for, if we do, the bees will return to the next storey before you can get it off, when smoke is of little use to drive them. Before extracting, save plenty of good, full combs for wintering and spring feeding. If the weather is cool when you wish to extract, place the combs of honey in a small room for three or four hours previous in which the temperature is kept as warm as 100°, when you can take them as you wish to uncap and extract them, doing this work as easily as on a hot day in July or August.

In the above I have given a brief outline of how I work for extracted honey, and as a proof that it is an average plan at least, will say that I have taken as high as 566 pounds of honey from a single colony in one season.

In conclusion, I will say that the getting of multitudes of bees just at the right time has more to do with the successful working for honey than anything else, and when all realise this, and work for the same to the fullest extent, one-half of the colonies will gather as much surplus as the whole do under one present management.—G. M. Doolittle (*American Apiculturist*), *Borodino, N. Y.*

AN ESCAPADE WITH BEES.—GETTING THEM DOWN IN A SKEP FROM THE GABLE END OF A HOUSE.

[1182.] About the year 1879 I supplied a swarm of Ligurian bees with an English-bred queen, in a large Pettigrew skep, to a friend of mine, who built a recess for them to stand in in the gable end of his house. I put them up, and they did very well there, and established themselves without feeding. As the next year was very indifferent, they did not swarm, and he did not get anything from them, but he let them stay. I believe he never fed them at all, or very little, in the spring. When summer came he supered them, and took off a straw cap between twenty and thirty lbs., and put another on, and they nearly filled that. He was at work at our place (being a master bricklayer), and used to be always asking me to drive his bees, so that he might have all their honey, &c. He promised to send a trap over for me. I told him, as it was an awkward place to get a heavy stock down from, he had better put up a scaffold to place them on, which he said he would, but he did not. He sent the trap for me, and I went over and took all things requisite for driving the bees, but when I got there I found all he had got was a single ladder raised up against the wall, and I told him that would not do. I went up and brought down the super, which was nearly full again. I went up again, and blew in a little smoke at top of the hive, also at entrance, and lifted the hive up, board and altogether. I said to him it was too heavy for me to bring down; but he was very anxious to fetch them down, and called out to me, 'Come down, and let me bring them down;' which I accordingly did. He had his veil on, and went up and lifted off the hive at the back of the ladder and stepped down one or two steps, but then he could not get down any lower nor yet up higher to put it back again; and as the holes at top and entrance were not stopped up, the bees were recovering from the effects of the smoke. His head was just opposite the front of the hive, so that his breathing over the top set the bees on, and they came out very angry and excited. His veil had got drawn up from protecting his throat, and the bees did sting him furiously, but he stuck to the hive well; and there he had to stay till his man came back with another ladder. He kept saying he should drop the bees, but I begged him to stick to them. I went up the other ladder and helped him carry the hive down and set it on the wall, and the bees were at him awfully, but they took no notice of me. I told him to run under the shade of some kidney beans, where I heard him howling out, 'They're a-killing me! they're a-killing me!' I went to him with smoker, and at last succeeded in driving them off, when, to speak within the mark, I might say there were scores of stings in his throat; I shall never forget the job of pulling them out, they were nearly as thick set as his beard. I got him to rub some soda on it, and went to drive the bees, which I did without any further mishap. After I had done I went into his house, and had a little refreshment with him; he also had some, and after that he was very bad. He thought he was going to die. I stayed with him till ten o'clock when he had some oatmeal gruel and went to bed.

I went over the next morning, expecting to see him still very bad, but, to my surprise and joy, he said he had had a good night's rest and was quite well. He is a very hardy man, and was in good health, or I think it would have caused his death. He weighed the hive after the bees were out, and it was 72 lbs. (the thick board 6 lbs. more), which, with the supers that were taken off, made a total of about 120 lbs., which fact he very much wished me to publish, as he said it was such a good yield. He did sing the praises of the Ligurians, even though they had served him so. Of course, we ought to have stopped up the entrance and the holes at top, and then they could not have got at him, but he did not anticipate such a job—78 lbs. was no trifle to hold, and the ladder between himself and the hive. Seeing him again last week, and singing out to him, 'They're a-killing me,' made me think, as bee-drivings were at hand, I would send the account to the *Journal*.—John Walton, *Honey Cott, Weston.*

PREPARING BEES FOR WINTER.

[1183.] Bees instinctively begin to make preparations for winter somewhat earlier in the season than is commonly supposed. In preparing for winter, as in all other matters relating to bee-keeping, the apiarist should see to it that the method of management is as nearly as possible in agreement with the instinct and habits of the bee. When bees build their combs after their own design, as in box-hives, spaces are left between wide enough to admit of elongating the cells in order that a large share of the winter stores may be placed in the top of the hive, easily accessible in the severest weather. I find it a good practice to widen the spaces between the comb-frames near the close of the honey-gathering season, in order that the bees may by elongating the cells place a large share of the winter stores above the cluster.

As soon as the storing of surplus honey is done the condition of every colony should be examined, the amount and character of the winter food ascertained, the number of comb-frames and the size of the apartment should be determined by and adapted to the wants of

each colony. After the supply of winter stores had been equalised among all the colonies, if the supply is insufficient, feeding should be done before the advent of cold nights.

Bees expected to perform the function of hibernation should not be too old nor yet too young. Both queen and worker bees should be in full physical vigour. The bees constituting the colony, when placed in winter quarters, should be such as are hatched after the midsummer working season is past and before the bees cease flying freely in the fall.

Towards the close of the working season the workers instinctively cease stimulating the queen for oviproduction; gradually the bees cease flying, and the cluster is formed for winter. After the cluster is formed the colony should remain undisturbed. If the bees are to be packed on the summer stand the work should be done with care and without disturbing the bees, and before the temperature at night reaches the freezing point. If the bees are to be placed in a clamp, or in a cellar, or winter repository, great care should be taken not to disturb the cluster when the hives are removed from the summer stand. I have found woollen quilts or woollen blankets the best covering for winter. Wool, better than any other material which I have tried, prevents the radiation of heat and permits the escape of moisture, thus securing warmth and dryness. Hives should be placed eighteen inches above the bottom of the cellar or winter repository, and in tiering them up one above another it is better that they rest on a rack prepared for the hive rather than one upon another.—*From the Official Report of Mr. McLain to the 'United States Entomologist' for the year* 1886, *issued by the Department of Agriculture at Washington.*

VAGARIES OF BEES IN SWARMING.

[1184.] On a Wednesday, about the middle of June, I had a swarm come out about eleven in the morning. As my workshop is at a little distance from my house, there is a white cloth hoisted up to let me know when bees are swarming. I saw it up, and on reaching home I noted that the bees were going back, so I looked about on the ground in front of the old stock and there found the queen surrounded by a few bees; so, as I did not want her back in the hive till I had cut out the queen-cells, I got a skep and put in two or three handfuls of bees, and then put the queen to them, and set them on a board, and removed the old stock, and set the skep in the place, so that in an hour or so when I looked at them there was a good swarm. I shaded them pretty well too, and they seemed all right; but about 3 p.m. I saw the signal up again, and I went down and found the swarm had come out, but the queen could not fly with them, and had crawled up to the entrance of another stock, where I discovered her balled, and when I got her away she was dead. I cut the queen-cells out of the old stock, and set it in its place again, and of course the bees had nothing else to do but go back. On Saturday night I did not want them to raise queen-cells, so I took a queen from another hive, and introduced her to them by direct introduction. The next day, being Sunday, about 12.30 noon, they had evidently accepted the queen, as they were swarming again. I hived them all right, and, as I usually do, set them where they were to stand, or as near as I possibly could. I was very particular about shading them, more than usually so, as I thought the sun had driven them out before, but about four o'clock judge my surprise when I saw the bees swarming! I went up to see where they came from, and naturally looked at the hive where I had put the swarm, when, lo and behold, it was empty! I just looked, and thought they were going to settle in the plum-tree again, but directly afterwards they appeared to be going further, and I soon saw it was a planned job of absconding. I went out into the road, and saw a young woman who told me the way they had gone. I followed, and found them going into a hole in an elm-tree not more than two hundred yards away. Fortunately it was not very high up, so that I was able to get up and put some grass in the hole, and returned home for a skep, ladder, smoker, and some carbolic acid mixture. When I got back, the bees were clustering all over a thick branch. I took my Clark smoker—'Jumbo,' as I call it—and standing on the ladder, was able to get both hands to the smoker, and pulling out the grass, sent volumes of smoke into the hole, which made the bees come out a great deal faster than they went in. I placed the skep on the branches, and by the aid of a rag tied on a stick steeped in carbolic I managed to reach them and make them run up into the skep. I then went and got my tea, and on return found them all nicely up in the skep. I carefully carried it down, tied it up, and took it back to my apiary, when I returned them to their original hive. They settled themselves down, and went to work with a will, and filled about sixty 1-lb. sections besides cramming the outside combs with honey.—JOHN WALTON, *Honey Cott, Weston, Leamington.*

Echoes from the Hives.

Honey Cott, Weston, Leamington, August 3rd.—The season, which has been short and sharp, is quite over, and although stocks are heavy, there is a strong inclination on the part of the bees to try and rob a little more from their neighbours if there is a possible chance. It shows the necessity for contracting the entrances to the smallest possible limit to prevent it, also to keep out wasps, which are getting rather numerous, and to all appearance by the end of the month will be a great nuisance. Have finished taking off all sections and racks. The unfinished ones I intend to place over the tops of hives to be cleaned out by driven bees. Also have nearly taken off all top storeys that were for extracting. These hives have yielded well. I have worked several with shallow frames, same as advocated by Mr. W. B. Carr, and liked them very much. The Carniolans (with me) have shown their superior honey-gathering powers again this season, both as regards quantity and quality. Queens mated with English drones and bees bred from them beat English and Ligurian bees out and out. I cannot get Ligurians to equal them.—JOHN WALTON.

Malvern Link, August 8th.—In reading your *Bee Journal* about the Lincolnshire bee-keepers, where they take honey by cwts., I think they ought in fairness to give us the number of hives, or it will act as a damper to the spirits of young bee-keepers. I have had three years, and have now six stocks. First and second years no luck; this year, 155 lbs. in sections and extracted (all from the old English black bees). I think of trying the dark strain of Italians. —A MEMBER OF WORCESTERSHIRE B. K. A.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

H. C.—*Amount of Food for Wintering.*—The amount of food for winter depends on the strength of the stock. Four pounds of bees may be crowded upon seven or eight standard frames. These frames should contain about twenty pounds of sealed food, be it honey or syrup, the former to be preferred. We have sought for, but have failed to alight upon, the words quoted from *Modern Bee-keeping;* but the above information may suffice.

A MEMBER OF THE WORCESTERSHIRE B. K. A.—*Ripening Honey.*—Your best plan is not to extract the honey till

it has been sealed over by the bees. Unripened honey is best put into some deep tank or vessel and allowed to remain for a week. The thin honey rises to the top, while the ripe honey descends to the bottom. Then the honey can be thickened by evaporation, but it loses the special taste and flavour of honey, and is then more like sugar-syrup.

W. B.—*Removing Bees to Heather.*—There is a great probability that your bees, taken the short distance named, would return to their old homes and so be lost; but is it not possible for you to convey them a little further into the midst of the heather and so safely reap the advantage which appears to be so nearly within your reach?

E. E. H.—*Loss of Queen and Uniting.*—In transferring the bees from the skep to the frame-hive we fear the queen has been lost. Having a small swarm in a frame-hive it would be desirable to unite the two. In uniting, bring the hives closer to each other, about a yard a-day, reckoning only those days on which the bees are flying freely. When the weather is suitable unite the two lots by opening out the frames of the receiving stock as gently as possible, and place those of the other between them alternately. See reply to 'Subscriber.'

J. R.—*Extracting.*—Extracting should be done indoors. The hives you extract from should be securely covered down before leaving, or it will cause much robbing and fighting. Wired frames are preferable for extracting, but tough combs will bear the process with little fear of breaking from the frames. It is desirable to extract as soon after the honey yield is over as convenient, but September will not be found too late for the operation. We prefer the evening for taking away the frames from which you purpose to extract, as affording less inducement for robbing and an opportunity of extracting by daylight and returning the frames in the evening.

Subscriber.—*Uniting.*—Open the hive to receive both and separate the frames wide enough to admit the others between them. At night, lift out the frames from the other hive, place them gently between the others and close all up. No smoke or disturbance is needed. If you fancy one queen more than another the worst should be removed at the time of preparing the hives for uniting.

C. Watson.—1. *Taking Sections.*—You might have brushed the bees off with a wing, or driven them off by smoke. Never leave honey out in the open or you will surely lose it. 2. *Refusing Sections behind Hive.*—Examine the excluder and be sure to put the side which is burred in stamping the holes away from the hive. If it was put the other way it might account for the refusal.

A. Shaw.—*Honey-dew.*—Although bees gather this and store it, it is not by any means desirable and spoils good honey with which it is mixed. As you have only had 12 lbs. from the lime-blossoms as yet, you must wait until next year for more from that source.

Leicestershire Amateur.—1. *Moth in Spare Combs.*—Fumigating with sulphur will destroy them. 2. *Cleaning out Combs.*—If you put them behind the dividers and more honey was put into them, it showed that the honey harvest was not over and that you could still obtain a surplus by extracting. Do not put them out-of-doors, you will set up robbing. 3. *Working out Combs.*—Put the foundation in the middle of the hive. 4. *Bees attacking Fruit.*—Possibly this dry season they are in want of moisture and supply themselves in the readiest way. Try giving water.

Model.—*Dead Queen.*—The queen externally was free from blemish; but too long an interval had elapsed since her death to make any satisfactory investigation as to the state of her productive organs.

C. W. Winton.—*Artificial Swarm.*—When you made the artificial swarm, the old queen was taken to the new hive. The remaining bees, under the circumstances, would raise another queen in about twelve days, who being fertilised without delay, the original stock would soon re-establish itself. Though not consciously following the prescribed method adopted by bee-keepers, the result has been better than might have been anticipated. Your bees have done well, and you have entered into their labours.

A. E. A. Edwards.—1. *Exhibited Honey.*—Honey is better exhibited in a liquid state, as it enables the judge to note its colour and consistency better. 2. '*Honey in any Form.*'—Sections shown under this head should be exhibited in glass boxes; extracted in bottles; supers under glass. The more attractive the whole of the exhibit is the better. 3. *Third Class Certificates.*—Yes; a good practical knowledge of bee-management is the chief point. Third-class examinations are generally arranged by the Secretaries of County Associations. 4. *Non-members of Associations.*—Yes; but a non-member would, of course, be charged a higher fee. The terms would rest with the County Association in which he resides.

Business Directory.

HIVES AND OTHER APPLIANCES.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
Appleton, H. M., 256A Hotwell Road, Bristol.
Baker, W. B., Muskham, Newark.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
British Bee-keepers' Stores, 23 Cornhill, E.C.
Burtt, E. J., Stroud Road, Gloucester.
Edey & Son, St. Neots.
Howard, J. H., Holme, Peterborough.
Hutchings, A. F., St. Mary Cray, Kent.
Meadham, M., Huntington, Hereford.
Meadows, W. P., Syston, Leicester.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
Stothard, G., Welwyn, Herts.
Webster, W. B., Wokingham.
Woodley, A. D., 26 Donnington Road, Reading.
Wren & Son, 139 High Street, Lowestoft.

HONEY MERCHANTS.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
Baker, W. B., Muskham, Newark.
Baldwin, S. J., Bromley, Kent.
British Bee-keepers' Stores, 23 Cornhill, E.C.
British Honey Co., Limited, 17 King William St., Strand.
Edey & Sons, St. Neots.
Howard, J. H., Holme, Peterborough.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.

FOREIGN BEES AND QUEENS.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
Baker, W. B., Muskham, Newark.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
Benton, F., Munich, Germany
Edey & Sons, St. Neots.
Howard, J. H., Holme, Peterborough.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
Simmins, S., Rottingdean, near Brighton.

METAL ENDS.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
Baker, W. B., Muskham, Newark.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
British Bee-keepers' Stores, 23 Cornhill, E.C.
Edey & Sons, St. Neots.
Lyon, F., 94 Harleyford Road, London, S.E.
Meadows, W. P., Syston, Leicester.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.

COMB FOUNDATION.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
British Bee-keepers' Stores, 23 Cornhill, E.C.
Edey & Sons, St. Neots.
Howard, J. H., Holme, Peterborough.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
Stothard, G., Welwyn, Herts.

HONEY GLASS MERCHANTS.

Abbott Bros., Southall, and Merchants' Quay, Dublin
Pearson, F. Stockton Heath, Warrington.

THE BRITISH BEE JOURNAL

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Editorial, Notices, &c.

AVOIDING EXTREMES.

The old copybook heading that 'Practice is more to be trusted than theory,' certainly holds good with regard to bee-keeping, yet many 'old school' men are much too apt to take the former as their sole guide in matters apicultural, and look down with pitying contempt on the teachings of modern science, greeting what they term 'new-fangled notions' with a sort of supercilious sneer.

When we speak of bee-keepers of the 'old school' we mean skeppists, whose reiterated boast it is that they kept bees when their hearers were boys, and that they 'ken mair aboot bees than onnybody,' as one of our contributors recently put it—which expression, by the way, will *lure*.

We often meet these ancient worthies, and find great delight in hearing of the wondrous things bees did in their day, and in the old time before them. There used to be skeps which harboured two distinct kinds of queens, the one for laying young bees, and the other for some unknown purpose. Useless is it attempting to gainsay such assertions, for such queens had been positively heard to bark at each other before the issue of a swarm. Bees, in these (shall we say middle or dark?) ages, used to *know* their masters. A painter's apprentice might paint a hive-stand at noon, in mid-summer, without fear of getting stung so long as the bees' master stood near. And when the great Reaper gathered the old man into his garner, when the grim Forester who levels all brought the old oak down, his beloved bees were duly whispered to at night, a bit of *crêpe* was tied to the skep, and some, perhaps, of his favourites accompanied his remains down the pathway to the hearse. Alas that the romance has fled! During the busy circling and whizzing of a swarm, ran tan went pot and pan, for this was the master's mysterious settling charm. The swarm, too, in these times, was always headed by a young queen which lived just a year, as did the bees. Indeed, certain of the old skeppists were so superstitious and ignorant as to the living contents of their hives that they doubted the existence of the queen, for the precise reason that they had never seen one, and did not believe any one else had. Then came the horrors of the sulphur-pit, and the disgusting messes which were hawked about and called honey. True they got some fairish honey at times from such new combs as had not been spoiled by brood and pollen, and from which the honey was drained. Of course, too, they had their mead made from the stuffed old combs, together with the sticky residue after honey had been squeezed out. It was well the ancients did not know (nor, perhaps, care much) what they really did drink as 'nectar fit for the gods.'

When we reflect that a century ago Huber was experimenting with observatory hives, citing the scientific fact of Debraw (an Englishman) having seen the queen lay eggs, and quoting Schirach's experiment on the conversion of a common grub into a queen, it really seems absolutely incredible that at this very day the most absurd ignorance still exists, and old prejudices still obtain,—aye, and to an extent little dreamt of by those who do not come in contact with the keepers of straw hives.

In medias res. We are not sure whether we ought not to recommend the Committee of the B.B.K.A. to firmly set their faces against the use of the skep in any way by discontinuing to teach ekeing, bumping, supering, or driving. Ought we not rather to seriously consider whether or not we are merely temporising with an admitted evil when we teach the cottager to manage (or rather, further mismanage) skeps?

Let us now look at the reverse of the medal. Let us regard him who has a spasm of bee-colic. He hears in the lecture-room how profitable bee-keeping is; he sees in the bee-tent 'how easily it is done,' and forthwith orders a stocked hive, probably at the fall of the year. He reads the current literature, and spies the existence of tame or harmless bees from Carniola, hard workers from Cyprus and Syria, and quiet Ligurians. These must be invested in at so much per head. Pity it is, however, he has not hives numerous enough for all the varieties he feels he must have. Veil, excluder-zinc, drone-trap, gloves, extractor, smoker, uncapping knife, foundation-fixer, wax-smelter, spray-diffuser, *et hoc genus omne*, these become at once absolutely necessary to him. A debtor-and-creditor account of expenditure and receipts is faithfully kept, and when a balance is struck at the end of the second season, there is a decided loss. One bee-keeper gives it up in disgust as *one who has tried it*, and he is thus enabled to speak with some authority when he says that bee-keeping *does not pay*. Modern or scientific bee-keeping gains nothing by having in her ranks such fickle sanguine subjects. Because at their Midas touch their honey was not turned into veritable *gouttes d'or*, they plunge to the other extreme and turn

gol l into drops of honey. The mischief caused by the unfavourable reports spread by one of these disheartened 'Excelsiors' is probably greater than the good produced by any single lecture.

Far be it for us to throw cold water on healthy enthusiasm. That is the great mainspring which keeps the mechanism of our existence as a brotherhood of bee-keepers pulsating with that healthy regularity which betokens real advancement. Far be it from us also to deprecate the use of scientific appliances. They are the cog-wheels which enable the machine to record the progress made. It is only the blind, crass ignorance of the past which is so puffed out with pharisaical conceit that it will not, if it could, learn from anything of to-day, and the hot-headed impetuosity which looks not before it leaps (the vaulting ambition), we desire to condemn without mincing words or clipping phrases.

Rather let us turn our gaze to those forcible examples of our national and characteristic temperament—men with us at the present day—bee-masters in very sooth, with whom the new rung out the old, from whom the old traditions passed away before the march of that science yielded by their own close observation and careful study;—men who still keep an odd skep 'for auld lang syne,' yet who themselves have hidden the merely picturesque and sentimental by the glorious building to whose erection they have contributed so much, be the same a hive, a frame, an extractor, or a smoker. Pillars these of steady perseverance lasting through long years, round which we may gather and take lessons against haste in anything, bee-keeping in particular.

USEFUL HINTS.

Weather and Prospects.—Still the drought continues, and the whole country, as far as the eye can reach in every direction, has the appearance of parched stubble-fields from which the corn has been already garnered. Our meteorologists tell us that up to the present time the rainfall of the year has been two inches; the average fall should have been twenty inches at least. Want of water is causing great distress in many districts, and the springs are so low that heavy rainfalls will be required to replenish them. Fruit, still unripe, is falling from the trees, which, on heavy soils, are themselves dying, owing to the cracked surface admitting to the roots the atmospheric air.

The Hessian fly is devastating the crops of our overburdened, ruined farmers, and the scourge of *Bacillus alvei—major* and *minor*—is decimating the apiaries of our largest and foremost bee-keepers, while corn and honey are quoted at prices lower than they have ever reached before. Call us pessimist, if you will, but there is no exaggeration h re, and the season of 1887 will assuredly ruin its thousands. In the midst of all our troubles we have, however, cause for thankfulness. Our honey crop is good—a full average one, we should say—and of good quality, although the continued heat and drought are, we hear, fostering the supply of that abomination which we call aphidean honey, and which the black bees delight to gather, while in many hundreds of sections, collected by the Eastern races of bees, we have not a single ounce of the black compound—*honey* we refuse to call it.

Sections, Extracting, and Manipulating.—Removing sections and extracting, where not already accomplished, should be completed without delay. It is impossible to lay down a hard-and-fast law to suit all cases and circumstances.

If bees are still gathering, although but little, remove sections and other supers in fine bright weather, during midday hours, whereby much time and trouble will be saved. The same remark applies to the withdrawal of outside frames for extracting, which should be *returned* at night only. If the bees are bent on robbing, let all operations be performed in the evening, and, under no circumstances, expose or manipulate the brood-nest during the daytime. The carbolised sheet is far more deterrent of robbing than the bellows-smoker. Indeed, we look upon the latter as a thing of the past, never more to be tolerated in our apiaries. Those who have tried the former will never return to the latter.

Introducing Queens may be carried on to the end of next month, but it is better to get them in as soon as possible, since the excitement of introduction generally causes ovipositing, which is undesirable after the middle of September. Some American apiarists of note cage the new queen in the hive before removing the reigning queen, keeping the former under confinement two days, at the expiration of which, if the bees appear well disposed towards her, the old one is removed and her successor released. The presence of the reigning queen is said to exert no influence over the reception of the queen designate, and the plan causes no cessation of egg-laying. Have any of our readers tried the plan?

Lee's Frames and Sections.—We have a good word to say for both of these. In the body-frames, as a rule, the combs are built straight, and attached to the bottom bar. We believe this would be invariably the case if more room—say from one to two inches—were allowed between frames and floor-board.

The sections are the most perfect we have yet seen—perfectly even, marble-like slabs, free from passage-ways at the corners, or any other irregularities. We hope the inventor will be able by next season *early* to put them into the market in quantity, and at a reasonable price, when we shall certainly use no other section, so far as we ourselves are concerned. His method of placing the sections on the hive is admirable, and when taken off they come out as clean and as free from propolis as the day they were put on.

Some of these sections, worked in our apiary, will shortly be exhibited in the shop of a leading London supply dealer, and, we hope also, at a future conversazione of the B.B.K.A., when all may see them and form their own judgment thereon.

Bacilli.—We continue to receive sad reports of the destruction worked by these pests. Mr. Cheshire has kindly paid a visit to our apiary, and taken a specimen nucleus of four frames affected with the *Bacillus minor* upon which to experiment, and we shall hope to submit his report to our readers in due course. We have inserted in all our hives, near the entrance, a small muslin bag containing a lump of camphor the size of a walnut, so that the scent may permeate the whole interior of the hive. This, we think, will act as a prophylactic at all events, and, in the case of affected hives, will prevent the spread of disease by robber bees, if it does not effect a cure. Again we most earnestly urge the greatest caution on all apiarists, both as regards the contraction and conveyance to others of the disease in neighbourhoods where it is known to exist. We are happy to report that Mr. Cheshire believes the *Bacillus minor* to be *quite distinct* from foul brood, or *Bacillus alvei*.

Stores.—A correspondent, 'H. C.,' referring to the statement in *Modern Bee-keeping* that 'two square superficial feet of honey are sufficient for bees to winter upon,' asks—'Does this mean that two frames (which present more than two feet of surface) entirely filled with honey would be sufficient? If not, how many frames would be?' The statement, which is of importance to all bee-keepers, will be found on page 68 of *Modern Bee-keeping*, last edition, is as follows:—'With frame-hives, each stock, if carefully wintered, according to *directions given further on*, will be amply provided if it have about two square superficial feet of sealed honey,' and is, to say the least, somewhat indefinite. In the same sentence, however, we are told that, 'In the middle of September, if skeps weigh 20 lbs,'—allowance being made for old and heavy combs, when the weight

ought to be more—'they may be considered heavy enough to stand the winter.' This evidently supposes that nearly 20 lbs. of sealed honey is the required storage for an average sized colony to winter upon.

Again, if we refer to page 83, of the same edition, we find the statement, '*Six standard frames* are sufficient for a strong colony'—*i.e.*, to winter upon.

Now, the inside dimensions of the standard frame are 13½ × 8 inches—equal to 108 square inches as the surface of one side of a comb. But if the expression 'two superficial square feet of sealed honey' means that *both* surfaces or sides of the comb are to be taken in the computation, then for each standard comb we get 216 sq. in., and two standard frames will contain 432 sq. in., or exactly three square feet, of sealed honey. We have, therefore, in two standard frames one square foot of surface more than required for the winter sustenance of a strong colony,—which we all know to be absurd. Hence it is evident that the expression, 'superficial square feet of sealed honey,' refers to *one* side of the comb *only*, when it will be found in entire agreement with the recommendation 'to winter a colony on six standard frames;' since a standard frame when well filled will contain 5 lbs. of sealed comb honey, four of these will supply the required quantity of 20 lbs., and leave two frames of empty combs for the brood-nest in the centre.

But in reality the sealed honey should be—and will generally be found—stored in the upper and back parts of all the six combs, while the brood-nest also extends over the lower and front portions of every comb *when the aspect given is south of S.E. or S.W.*

In our experience, however, a strong colony, when placed in winter quarters, should cover well ten standard frames, and we do not care to winter any that require less than eight. We find, also, that 25 lbs. of sealed food is not too much for a strong colony during the six months from September to March.

Feeding and Robbing.—Colonies whose stores have been closely extracted should be fed, without delay, up to the required weight for wintering, but in rapid feeding care must be taken lest the brood-nest become clogged with the food. This may be prevented by an occasional examination and re-arrangement of the combs. The strictest precautions are necessary also to prevent the 'setting up' of robbing. Not a drop of honey or syrup must be exposed in the open apiary. Once set upon raiding, bees become so thoroughly demoralised that the destruction of large apiaries has frequently been the result. The other day only we saw the drawing-room of a friend literally filled with bees. The carpet and furniture were covered with crawling bees, unable to fly because gorged with honey. And all this was caused by incautiously placing upon the table temporarily a few sections of honey recently removed from the hive, and *leaving the window open*. What more likely to create an inclination to rob throughout the whole apiary?

ASSOCIATIONS.

NORTHAMPTONSHIRE BEE-KEEPERS' ASSOCIATION.

The above Association held their annual show on Bank Holiday, August 1st, in connexion with the Northamptonshire Horticultural Society. About 700 lbs. of honey were staged, most of it being of excellent flavour and appearance. There were in all twenty-five entries. Mr. J. R. Truss of Ufford Heath, Stamford, carried off the silver medal with twelve 1-lb. sections which would have been hard to beat anywhere; while the first prize for extracted honey—a Cowan hive, given by Mr. Lamport Gilbert, the Hon. Sec.—went to Mr. A. Hollis of Boughton for a dark honey of excellent flavour and consistency. The bee tent having been lent to the Cambridgeshire Agricultural Society, and having been detained by the Railway Company, did not appear, much to the annoyance of all concerned, and to the disappointment of the many visitors. Mr. J. Shaw of Moulton Park and Mr. Lamport Gilbert acted as judges.

IRISH BEE-KEEPERS' ASSOCIATION SHOW AT SALTHILL GARDENS.

This show, which was held on the 9th and 10th of August, was remarkable from its being unconnected with that of any other society. Additional attractiveness was, however, sought to be given to it by military music and the choice of a particularly pretty and agreeable situation on the seaside. It was hoped that by these means a large number of the general public might be induced to attend, besides those specially interested in bee-keeping. In this respect the result did not equal the expectations formed, but of bee-keepers, and those wishing to become such, probably few who were able to come omitted to do so.

The Dublin press gave long reports of the proceedings, and on the whole it is believed that, in spite of the limited character of the attendance, the show will be found to have given a great stimulus to bee-keeping, and to have drawn a large amount of public attention to the work of the Association.

A special feature in this show was that in the honey department, besides the classes open to general competition, there were also classes open, without entrance-fee, to members only. In the department for hives and appliances the exhibits were twenty-eight in number, mainly from Messrs. Abbott Brothers and Messrs. Edmondson Brothers. No exhibits were sent from England, except an interesting one from Mr. James Lee, consisting of a pair of supers, with his new sections in frames, put together by means of continuous dovetail grooves and tongues. In the honey department there were thirty-seven entries, only one of these being in the class for 2-lb. sections. In addition, Mr. Stanford had a fine exhibit of honey, but this was precluded from competition by the rule forbidding judges to compete in any class. This rule, besides diminishing the competition in honey, had a most injurious effect on the class for amateur hives, two of the best amateur hive-makers being unable to compete, since their services as judges were urgently required. The sections, except when sent in show-cases, were piled on the tables in pyramids, which had a pretty effect. Some, which had not been glazed, were covered with thin white tarlatan, to protect them from bees. This, however, but imperfectly effected its object, for on the second day much uneasiness was caused to the Committee by finding, before the show opened, that large numbers of bees had made their way in under the coverings, while, of course, many more were buzzing about the tent. No serious consequences, however, ensued. The bees, after penetrating beneath the gauze failed to find their way out again, and were thus prevented from returning to their hives and bringing fresh marauders back with them, while the public were not frightened from the tent, but allowed the bees to buzz about their heads with the most admirable coolness.

In the bee-tent the attendance was highly satisfactory, and the greatest interest was shown in the lectures, which were given in the most able and interesting manner, accompanied with extremely skilful manipulations, by Mr. Roland Green, the well-known expert of the British Association.

The weather was favourable, and the show, on the whole, passed off most satisfactorily. The Hon. Secretary, H. Chenevix, Esq., was ably assisted by several members of the Committee, especial acknowledgment being due to the indefatigable ardour and unremitting exertions of the late Hon. Sec., Mr. Stanford. Mr. T. Elderkin, one of the exhibitors, also rendered most valuable

assistance, and the warmest thanks of the Committee are due to Mr. Kelly, the stationmaster of Salthill Station, immediately adjoining the gardens, who, with the kind permission of the Traffic Manager, issued tickets for the show, placed porters at the gate, and gave important aid in other ways.

In the judging department the Committee were fortunate in securing the services of a well-known and very experienced bee-keeper, the Rev. H. W. Lett, who travelled a long distance to be present at the show. The following is the prize-list:—

For the most economical (best and cheapest) hive, on the moveable-comb principle, with crate of sections, price not to exceed 15*s.*: 1, Edmondson Brothers, 10 Dame Street, Dublin; 2, Same; 3, Abbott Brothers, Southall, London, and Merchants' Quay, Dublin. For the same as preceding, price not to exceed 10*s.* 6*d.*: 1, Edmondson Brothers; 2, Abbott Brothers; 3, Same. For the best straw hive with super (cost to be taken into consideration), complete, with floorboard, price not to exceed 10*s.*: prizes equal, Abbott Brothers and Edmondson Brothers. For the frame-hive best adapted in all respects, price included, to be employed profitably for general purposes: 1, Edmondson Brothers; 2, Abbott Brothers; 3, not awarded. For the hive best adapted in all respects, price included, to be employed profitably for extracting purposes: 1, Abbott Brothers; 2, not awarded; 3, Abbott Brothers. For the best hive for general purposes, made by an amateur: 1, not awarded; 2, J. G. Barlow, Stream Vale, Clonmel; 3, not awarded. For the cheapest and best super for 1-lb. sections, adapted for frame-hives: 1, Edmondson Brothers; 2, Abbott Brothers. For the cheapest and best super for 1-lb. sections, adapted for straw hives: 1, Edmondson Brothers; 2, not awarded. For the best and cheapest collection of articles required in modern bee-keeping, other than hives and supers: 1, Abbott Brothers; 2, Edmondson Brothers. For the best twenty-four 1-lb. sections of comb honey: 1, Miss Mary Daly, Brownstown, Navan; 2, G. W. Hargraft, Woodbrook, Shinrone; 3, F. H. Jones, Mullinabro', Co. Waterford; 4, Thos. Elderkin, Kilcarberry, Enniscorthy. For the best twelve 2-lb. sections of comb honey: Prize not awarded, but special prize given to the Rev. Robert Seymour, Aghar Rectory, Enfield. For the best twelve 1-lb. bottles of extracted honey: 1, Miss Mary Daly; 2, J. G. Barlow; 3, Miss F. W. Currey, The Mall House, Lismore.

For Members of the Association only.

For the best twenty-four 1-lb. sections of comb honey: 1, Miss Mary Daly; 2, T. Elderkin; extra prize, Miss F. W. Currey; very highly commended, T. Elderkin; highly commended, Miss E. E. Rutherfoord, The Ghan House, Carlingford. For the best twelve 1-lb. bottles of extracted honey; 1, J. G. Barlow; 2, Miss Mary Daly; extra prizes, Miss Bertha Doyne, Seafield House, Gorey, and Miss F. W. Currey.

The following is the report of the judges on the hives and appliances:—

'In presenting their report, the judges regret to be obliged to state that, on the whole, the hives exhibited were not up to standard, either as regards workmanship or material used. There was a marked absence of variety of design for the different classes, the same hives, adapted to suit the specifications of the class, appearing again and again. The judges were very much struck by the great cheapness of various exhibits, as compared with former prices; but they hope efficiency will not be sacrificed for cheapness, and that the uncertain climate will induce manufacturers to build strong, weather-proof hives. The exhibits, however, showed that a spirit of enterprise was being largely diffused among manufacturers.

'Class 1 calls for no special remarks.

'In Class 2, second and third prizes were awarded to hives without either doors or porches, which the judges consider very essential points, but in other respects the hives were satisfactory.

'There were only two exhibits in Class 3. The judges considered neither of the hives shown to be thoroughly satisfactory, both having equal merits and faults, and, consequently, equal prizes were awarded to each of them.

'In Class 4 the judges reluctantly awarded first prize to a hive, price 2*l.*, being the only hive exhibited deserving of a first prize.

'In Class 5, sufficient attention had not been given to weather-proofedness, and, consequently, no second prize was awarded.

'Class 6, the amateurs' class, was disappointing, neither exhibit being worthy of commendation. The judges hope amateurs will give more attention to workmanship in future.

'Classes 7 and 8 call for no special remarks.

'The collection of appliances in Class 9 was specially good, the articles in both exhibits being very carefully selected.

'The first prize exhibit included comb foundation samples of Dublin manufacture. This being the first venture in this direction, is deserving of great praise. The feeders were also exceptionally good, both in design and make, as were also a collection of bottles and a Raynor extractor. An observatory unicomb hive, stocked with bees, was much admired. The second prize exhibit included a collection of bee-literature and honey-tins, with patent air-tight lids and fitted with treacle-taps, being a new departure in appliances. The Rev. T. Lett, E. D'Olier, W. J. Stanford, Judges.'

The judges' report on the honey classes is as follows:—

'The display of honey was rather good, especially in the classes confined to members of the I. B. K. A., but with few exceptions the exhibits of sections were not first-class, which the large harvest of honey gathered this year made somewhat inexcusable. Very good run honey was shown, but sufficient care was not taken in some instances with the straining, and some of it was thinner than consistent with ripeness. The judges were very well pleased with the get-up of both sections and run honey; though some of the exhibitors neglected glazing their sections, which were in consequence a great attraction to the bees. They found the Woodley tin cases with glass sides very convenient for examining the sections, they were so easy to replace, also the cardboard boxes, but those glazed with paper and paste when opened had to remain so. Tom Sell's labels looked very pretty on many of the bottles. None of the bottles were fastened with sealing-wax, as had occurred in previous shows, and necessitated breaking some of the bottles to judge of their contents. Screw caps were much used, and are the best to be used in exhibits.

In Class 9 (for exhibits of twenty-four 1-lb. sections), the judges had no difficulty in awarding first prize, the exhibit to which it was given being first class, and uniform throughout, which is more than could be said for the rest. Indeed the judges were very much inclined to withhold some of the prizes on account of insufficient merit. There was one exhibit of 134 sections in this class, but apparently worked with dividers, and judged too light for 1-lb., otherwise it would probably have taken second instead of third prize.

Class 10 (for exhibits of twelve 2-lb. sections.)—In this class there was but one exhibit, which the judges consider of insufficient merit for the prize of 15*s.* in the catalogue, but awarded it a special second prize.

Class 12 (for exhibits of twelve 1-lb. bottles of run honey.)—This class was but little contested, and the judges had little difficulty in settling the order of merit. An exhibitor of white clover honey, which carried off first prize, was the only really bright looking one in this class.

Class 13 (for exhibits of twenty-four 1-lb. sections, confined to members of the I. B. K. A.) had a full number of exhibits, but, as in the case of Class 10, none of them but that which was awarded first prize were first-rate, the pop-holes being too large, and in some cases combs not built down to the bottom.

Class 14 (for exhibits of twelve 1-lb bottles, confined to members of the I. B. K. A.)—In this the entries were full, and, in general, of good flavour, fair consistency, and bright in appearance. Some of them were not carefully strained, and some not handled cleanly; but the remainder taxed the judges' powers of discrimination. Finally, a specimen of dark honey was awarded first prize, the second being taken by a beautiful set of hawthorn honey, which, however, was scarcely of the proper consistency. Special

third prizes were awarded to two exhibits, one of fine dark honey, and the other slightly crystallised.

Judges—Robert Sproule, J. M. Gillies, M. H. Read.

On the evening of the first day of the show a conversazione was held, by kind permission of Dr. Traill, in his rooms at Trinity College. A very interesting paper was read by Mr. H. Read, 'On obtaining Comb-honey combined with Extracted,' and thoroughly discussed. There was a good attendance of members, and Mr. Roland Green, the lecturer at the show, was also present.

[It has given us much pleasure to receive such excellent reports of this and the other Irish shows which have been held this year.—Ed.]

ARMAGH (IRELAND) HONEY AND BEE SHOW.

For the first time a Honey and Bee Show has actually been held in the city of Armagh, and the event took place on the 10th inst. The record deserves to be made, as, before the development of the County Armagh Bee-keepers' Association into the North-East of Ireland Bee-keepers' Association, the bee-keepers of the ancient city never could be induced to get up a bee and honey show. However, they have got aroused at last, and had a large exhibition of bees, honey, and appliances, for which they offered sixteen prizes, and for which they had thirty-one entries on Wednesday. The judges were the Rev. H. W. Lett, Loughbrickland, and Mr. John Burnett, Manchester, and the following are the awards:—

Stock of bees to be exhibited in an observatory hive, credit to be given for both bees and hive—1, W. R. Orr, Strabane; 2, William Lonsdale, Lurgan. Twelve sections of honey—1, Samuel H. Orr, Loughgall; 2, Wm. Lonsdale; 3, David W. Shaw, Anahilt, Hillsborough. Six sections of honey: 1, Mrs. Griffiths, Killynure; 2, David W. Shaw and Samuel H. Orr—equal. Twelve jars of extracted honey: 1, Robert Brown, Donaghmore; 2, David W. Shaw; 3, Rev. Robert W. Knox, Saintfield. Six jars of extracted honey: 1, Robert Brown; 2, John Tufft, Moy. Collection of bee appliances, hives, and utensils for use in an apiary: 1, W. R. Orr; 2, William Porter, Jerretspass, Newry. Bee-driving competition: 1, Rev. Robert W. Knox, Hillsborough; 2, Wm. Lonsdale.

The sections of honey were not as well filled as some that have been shown at other places in Ulster this season; and while the judges were unanimous in picking out the heaviest and most complete sections for first prizes, they had some difficulty in deciding between those coming second and third. In the extracted honey classes, Mr. Brown's exhibit deserves special mention as being as near a model sample as well could be, pleasant flavour, pale light amber colour, quite clear, very dense and consistent, and with a delightful aroma. There were two specimens in this division of dark honey, which one or two of the visitors called 'heather honey,' but which, on being tasted, proved to be unmistakable aphidean, or honey-dew.

The collections of bee appliances and utensils for use in bee gardens were as complete in first-class hives, extractors, feeders, foundation, veils, gloves, smokers, knives, sections, &c., as need be, and great interest was taken in them by the crowds who visited the show yard during the day. In the bee tent there was a most successful bee-driving contest between two competitors, the Rev. R. Knox catching the queen and clearing out his bees in seven minutes, and W. Lonsdale doing the same in ten minutes. A short lecture was then given, and numerous questions on modern bee-keeping answered by the Rev. H. W. Lett and others.

DUNGANNON BEE AND HONEY SHOW.

At the Horticultural Show held in Dungannon, Co. Tyrone, on the 3rd inst., there was a large class devoted to bees and honey, of which the following is the prize-list:—I. Stock of bees to be exhibited in an observatory hives, credit to be given for both bees and hive: W. Lonsdale, Bee Garden, Lurgan. II. Twelve sections of honey: 1, S. Orr, Loughgall; 2. W. Lonsdale; 3, J. Tufft, Drumgold House, Moy. III. Six sections of honey: 1, S. Orr; 2, W. Lonsdale; 3, J. Tufft. IV. Twelve jars of extracted honey: 1, R. Brown, Donaghmore; 2, J. Tufft and James Moore, Mullaghfurtherland (equal). V. Six jars of extracted honey: 1, J. Moore; 2, R. Brown; 3, J. Tufft. VI. Collection of bee appliances, hives, and utensils for use in an apiary: 1, Wm. Lonsdale; 2, S. J. Baldwin, Apiary, Bromley, Kent. VII. Bee-driving competition: W. Lonsdale.

The Rev. H. W. Lett, Loughbrickland, was to have been judge, but was prevented from attending; his place, however, was well supplied by Mr. W. R. Orr, Strabane, another member of the North East of Ireland Bee-keepers' Association. Indeed, the show at Dungannon may be regarded as a branch of the North East of Ireland B.K.A., most of the exhibitors and prize-winners also belonging to it, so that these provincial exhibitions are portions of the work that the Association, whose head-quarters are now in Belfast, has helped in great measure to inaugurate.

Mr. Lonsdale's observatory hive was a large one, containing six standard frames, well covered with black bees. *Apropos* of this prize, it might be asked why at other shows have judges so often given the preference to foreign insects when all other points were equal? To say the least, it is not patriotic to do so. Again, how are exhibitors to know what is meant by '*best specimen*' or '*best stock*' of bees? There ought to be more definition for the assistance of all parties. The writer has seen a single frame in an 'observatory' beating one with half a dozen equally good combs, a thing which nobody could understand. There was a close competition in the honey, both sections and bottles, for which there were many entries, all of a very good quality.

It was pleasant to see Mr. Baldwin, Bromley, Kent, showing his collection of bee-appliances, though he was not as successful as the local man. For the bee-driving competitions there were three entries, Mr. Lonsdale winning by clearing out most of his bees and capturing their queen in three and a half minutes. The Committee required each intending bee-driver to provide a skep of bees, which were then drawn for the subsequent process, an arrangement which prevents the possibility of any unfairness.

Honey as an Article of Food.—'Whilst I was listening to these details, we discovered a number of peasants running on the hill, striking on brazen vessels to attract a swarm of bees which had just left the hive. These insects are extremely partial to Mount Hymettus, as it is covered everywhere with wild thyme and other odoriferous plants. The honey extracted is of a white colour, verging towards yellow, grows black when long kept, and always retains its fluidity. The Athenians gather vast quantities of it every year; and we may judge of the value set upon it by the use made of it; they employ honey in their pastry, as well as their ragouts, and the eating of it, it is said, will prolong life, and to be particularly salutary for aged persons. I have seen some disciples of Pythagoras take no other nourishment than honey, and yet preserve their health and strength.'—Barthelemy. *Travels of Anacharsis the Younger in Greece.* (London, 1798.)

[The above forwarded to us as genuine history must not be considered so. The Abbé Barthelemy was a learned archaeologist; and though his work, the *Travels of Anacharsis the Younger in Greece*, is a pure fiction, it is considered to be a faithful portraiture of the manners and customs of the country in the age of Pericles, more than four hundred years before the Christian era.—Ed.]

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts (see 2nd page of Advertisements).*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

IN THE HUT.

'Oh, for lodgings in some vast wilderness—of heather.'

[1185.] On July 28th I happened to pass through Ely at the time of the Cambridgeshire and Isle of Ely Agricultural Show, and thought I would see for myself 'how they do it' in this land of skeps, for a land of skeps it is *par excellence* (?) judging as one may from the railway carriage window. My incognito was not long preserved, however, for on approaching the bee-tent, Baldwin, S. J. (not special jurist), E.I.C. (not East India Company, but Expert-in-Chief), was just getting ready for an attack on the bucolics, and used me as X-tractor during his manipulations. Mr. Editor, there were four of us, on a fine day, and—we enjoyed ourselves. I assisted by sitting on a wooden trestle (or tressel, I don't know which) in the tent, whilst Mr. Baldwin performed on the bees, and gave them an opportunity of performing on me. Then I had her majesty to show round in a bottle. The expert had his smoker, and I had mine. He used old carpet, and I 'baccy.' Mr. Godfrey and Mr. Howard made us very welcome; but oh, for a fine extempore discourse! I would that I had the flow of language of our E.I.C.; I think I would take to the Church. Well might the bees be subdued. The network of the tent was surrounded by eager faces mostly, but in truth there were a few *skeptics*, one of whom told the audience that 'he'd heeved more swarms then him, ay, an *before breakfast, tew*.' Thus did he stand condemned out of his own mouth of being either a base perverter or a beery chaw-bacon—or both.

A huttite asks a puzzling question. One of his hives at heather is a doubled one well filled with bees, and the owner of an adjoining skep of recently driven bees says they have left the skep and joined the hive. He claims 10*s*. for 5 lbs. bees. Huttite refuses to pay, for he would rather do without 'em; besides, the next morning a large cluster were on the hive roof, having been perhaps turned out. The owner of the skep was another member of the race discovered by Mr. Webster in borderland, nobody knew more aboot bees 'nor him, so he said. He hadn't tried frame-hives, for he didn't like 'em.

A north-of-England bee-keeper told me the other day that he overcomes the difficulty about extracting heather honey by using behind and above queen-excluder—super foundation in the ordinary frames. He had never had any mishap. We won't try it, however. Our plan this year has been to do little extracting between clover and heather seasons, because of the many cells filled with honey-dew; to take the hives to the heather *heavy* instead of light, thus forcing the bees to store in supers. —X-TRACTOR, *Horsforth, near Leeds.*

'BY PERSEVERING.'

[1186.]—You kindly inserted two letters of mine in your valuable *Journal*, Nos. 623 and 657, last year, detailing my adventures and misadventures in trying to become an apiarist. With your permission I should like to relate my further experiences, which, though probably not instructive, may prove interesting to some of your readers.

You may remember that according to 657 I closed my first half-year bee practice with five stocks and eighty-six stings. Having read your *Journal* weekly with much interest, and having noticed how often the question was asked, 'What number of stings must I receive before becoming inoculated?' I determined to pay particular attention to the number of stings I received, and to the effect they had upon me; and, knowing I was right as to the actual number (eighty-six) received last year, paid particular attention to those received this. Well, the painful score ran up by twos and threes, with an occasional dozen to relieve the monotony, if monotony there be in such things, until 130 were scored, then the swelling in a great measure ceased, and all after ill effects disappeared; in short, I was inoculated. 'Tis true the pain at the time of being stung is excessive for a few seconds, but what of that? even that is decreasing gradually, and though a slight swelling sometimes occurs, it is of no consequence even if discernible by the public. Therefore to my fellow-novices I would say—Persevere; some may take more, some require fewer stings, but by perseverance all will in time become, as I believe I now am, inoculated.

But to return to my bees. Two of my five stocks appeared so weakly I determined to unite them, and after some trouble did so; they having since done fairly, and with the other three wintered well. In the early spring I purchased two stocks in skeps, and having transported them to my apiary, transferred them successfully to bar-frame hives. All these I began to stimulate in the early part of April, mostly on dry sugar; but being obliged to leave home for a month in May I filled all dummy feeders with dry white sugar, added to each a few more bars of foundation, and left hoping for the best.

Unfortunately I was detained away longer than I had expected, and just as by my previous arrangement I ought to have returned, six of my stocks swarmed, but, thanks to the watchfulness and skill of my assistant, all were secured in skeps.

On the day of my return my seventh stock showed signs of swarming, but by the addition of foundation bars I turned their purpose, and have since kept them drawing out combs for their weaker brethren. With the five swarms in skeps I had great trouble in inducing them to inhabit bar-frame hives (possibly because of the heat of the weather and that the said hives had only recently been painted), but after giving me an infinite amount of work they settled it thus amongst themselves —two should unite, one should decamp, and the remaining three settle respectably. Since then all have done well, and though I cannot lay claim to the large honey receipts described by some of your correspondents, yet, for a beginner, I do not think I have done badly, and am told the honey I have got is of good quality.

With regard to the dry dummy feeders which I on leaving home filled with sugar, I found them on my return filled with comb containing brood and honey. These proved an awful nuisance to me, for I could not drive the bees from the rear of the combs, and the latter were too weak to stand the jar consequent upon breaking off the fronts and backs of the dummies, consequently many bees paid the penalty for playing with their dinner things with their lives. My love of bees having increased with my knowledge of and power over them, and disliking to cause needless pain, I bought a Webster's fumigator, a bottle of liquid, barrel, and bellows, and having charged it strictly according to instructions on the bottle, proceeded to manipulate No. I. Was not I pleased? The bees were so quiet I could do as I liked. No fear of the fumer going out, no choky smoke to

contend with, but all serene; the pleasant hum of bees beneath me and the bright blue sky overhead. Ah, I exclaimed, this is the implement for me; henceforth this is the only subjugator I will use. Closing No. 1, I opened No. 2 (my object in both being to extract two bars of sealed stores). What a change! Before, all was peace and goodwill, but here just the reverse. Out they came boiling over the bars on to my hands, and, as if to show their scorn of the fumigator, actually running hissing up the barrel. Indeed, had it not been for the poor despised smoker, which meanwhile had been quietly smoking itself away, No. 2 would have come off victorious, whereas by its aid they, like No. 1, had to yield up their stores. Since then I have tried the fumigator more heavily charged with liquid, but have decided that on the whole I prefer the smoker. I now own twelve strong stocks, and so end my further experiences as a novice, as I, having successfully managed so far, will, with your leave, discard my previous *nom de plume*, and, adopting my family motto, sign myself—PERSEVERANDO.

VICIOUS BEES.

[1187.] What *am* I to do with my vicious bees? When I read in the *Journal* of the extracting system I often think with a smile, I should like to see the man who would do it with my demons. On June 11th I put a large swarm in a ten-frame Woodbury, filled with foundation. The next morning they boiled out at the entrance in such an extraordinary way that, after deluging with water, shading, and trying everything, I at last raised the hive half an inch from the floorboard all round, by means of wooden blocks at each corner, and also put on two supers each holding six 2-lb. sections. I ought to have mentioned the hive had an outer case of ½-inch pine with a 2-inch space all round between it and the hive; this I now put on, and the 2-inch space was full of bees as also the supers, but they seemed more settled, so I put on the roof to cases and left them. Ten days after I went to see if they were working in sections, and to my surprise found both full of comb, and (what I had never seen before) the 2-inch space all round also full of comb, and all in ten days. I now replaced the full section with empty ones, but the 2-inch spaces being crowded with bees, thought I would leave the comb there till cooler weather compelled them to draw inside the hive. That cooler weather hasn't come, and as I thought the large entrance to outer case, and the ½-inch space all round bottom of hive, gave great facilities for robbing bees and wasps, I set to work yesterday at 7 p.m. to remove the outer comb, and drop the hive down on to floorboard. Veil and double cotton gloves were put on, and carefully taking off roof I laid carbolised calico (according to your directions) all round on the top of the comb to be removed, trusting this would drive the bees down into hive. After waiting five minutes, without removing the calico, I then severed the comb from the outer cases by passing a thin knife all round, and lifted it carefully off. I immediately realised I was to have a rough time of it, being at once surrounded by a crowd of angry bees, and my gloves especially covered with them. Fetching smoker, and dipping my gloves in water, used the former freely, and then with knife and dish went for the hive with the view of getting the bits of comb off the back. I got the comb it is true, and also something besides, as certain sharp twinges in my ankles and legs informed me. I now tried for the combs on sides of hive, but was met by such a volley of angry bees from beneath, back, and sides, like sparks from a blacksmith's anvil, that I determined to drop the hive on to floorboard first. All this time I had a perfect swarm of angry bees around me, and the moment my hand approached the first block it was black with stinging bees, and in the end I was obliged to lever the hive up with one long stick while I knocked the blocks away with another; smoke being utterly useless.

Now, sir, I shall be obliged if you, or some kind reader of the *B. B. J.* with experience, will kindly tell me where I erred in my proceedings, and how I ought to have managed the matter so as not to have so fearfully excited the stock, for now, twenty-four hours after, no one can go into the garden without being stung and driven into the house.

And what is *my* reward, fearfully swelled ankles and two dishes of nice-looking comb, but tasting fearfully smoky? Fancy oneself extracting with such demons; why the garden would be unapproachable all the summer. —J. ROBINSON, *Beyton, Bury St. Edmunds, August 11th.*

[You ask 'wherein have I erred?' To be candid, then, we reply:—(1) In placing so large a swarm in a small ten-frame Woodbury hive. Such a swarm would have quickly filled two such hives. But why use an old-fashioned 'Woodbury'—the hive of thirty years ago? Why ignore all the modern expansible frame-hives, which possess every possible scientific improvement, and are easily adapted to small or large swarms. (2) In giving too little super space; 24 lbs. in sections are a mere trifle for a large swarm. We should have placed such a swarm upon fourteen standard frames, and upon these a 28-lb. crate of 1-lb. sections, to be tiered up, after three or four days, by placing a similar one beneath it, in the midst of a copious honey-flow like yours. We only wish we had such a honey-producing country as we *know* yours to be! (3) In raising the hive ½-in. A ¼-in. is sufficient for ventilation and for the passage of bees. Probably comb was built in the inch space you gave, between frames and floorboard, and when removing the wedges you crushed bees and combs, hence the anger of the poor bees. You need not have feared the robbing of a colony like yours. Crushing of bees, and the consequent strong smell of formic acid (sting-poison), so enraged the bees that we congratulate you on escaping with so little damage. (4) The worst error of all, if worst can be, was to attempt the manipulation of so large a colony at 7 p.m., when *every bee* was at home! Have we not recommended in the columns of the *Journal, ad nauseam*, to manipulate *during the honey season only* on fine days and between the hours of 10 and 3? Had you followed this advice, and manipulated slowly and quietly, notwithstanding former mistakes, you would have succeeded with bare hands and escaped punishment. Our advice, under 'Useful Hints,' to manipulate in 'early morning or late evening,' only applies during a honey dearth, or when robbing is rife; and yours was not a case of *opening the hive* at all, from whence the great danger arises. Whenever, in future, you thoroughly irritate the bees (which *never* should be done) throw over the hive a small sheet steeped in carbolic solution, and leave them for an hour, when they will have become quiet, and you may then proceed and complete the operation. In such cases smoke is worse than useless. Your hive, without doubt, is clogged with honey, and about half the comb *must* be extracted, or you will lose your bees from want of breeding-space. Can you not obtain the help of a qualified expert?—ED.]

MY EXPERIENCE WITH FOUL BROOD.

[1188.] I know the opinions of the different authorities on the subject of foul brood, and I know what arguments can be and are going to be brought against my theory of the disease. I have a firm belief in all the experiments on the disease that have been reported to the bee papers, but I am careful not to get a party's opinion so mixed with his experiments but that I can consider each separately. It is my intention after I state my experiments to base my arguments solely on

the evidence to be found in the *American Bee Journal*, *Gleanings*, and other bee-literature.

I am going to offer no plan of cure adapted to all circumstances, for I do not believe that a treatment is yet found, or ever will be invented, that will suit every case. Therefore every bee-keeper should learn all he can about the disease, and when it is among his bees he will know better what to do than anybody can tell him. I am determined to argue the question honestly and fairly; and if any one sees where he thinks I am wrong I would be pleased to hear of his experience, and I will not contradict his experiments.

On June 16, 1885, I discovered foul brood in one of my hives in the shape of discoloured larvæ, but I do not think that it was foul brood though, because the disease always appeared in my mind as associated with 'sunken caps with pin-holes in the tops.' I was uneasy, though, about it. The honey-flow from flowers ceased that year about May 25, and as I had finished extracting I was doing very little to the bees except watching that discoloured larvæ which I could not understand. On June 21 I opened a hive that had it so badly that about twenty per cent of the brood was dead with the disease, as near as I should guess. I then began to examine other colonies. I found none free from it, though some cases were not bad. I saw that there was only one thing that could cause this state of affairs, and that was foul brood, and that I must get some remedy and go to work to cure it.

I had read Mr. Cheshire's experiments and views on the subject the year before, and I was so favourably impressed with them that I took my *Bee Journal* for 1884 and re-read the articles on pages 644 and 740, and, as you may suppose, with no little interest. When I was through studying the articles I was just as sure that I could cure the complaint with his remedy as is Mr. Cheshire himself. The medicine I got was called 'chemically pure carbolic acid.' I had then sixty-five colonies of bees, and as I wanted to cure them all at once I fed each colony every day. Every evening, as soon as there was no danger of robbing, I would commence to feed, raising the cover of each hive and pouring about four ounces of food down between the frames. I kept this up for eight days, and as I could see no improvement I decided on a more thorough treatment, which was this. I would extract the honey from the frames and cut out the combs all but about two inches at the top, which had never had any brood in it; I filled these strips of comb with this phenolated syrup, put them in a hive washed with carbolic soap; then I would take the brood from a colony of bees and put the bees in the hive thus prepared. I also had a lot of this phenolated food in a barrel, arranged so that all the bees could help themselves to it, which they did. I had prepared twenty-six colonies in the manner above mentioned before I could see whether I was curing them or not. But as soon as they had larvæ three or four days old I could see that I had not cured them. I stopped work to watch the result of what I had done: I soon became satisfied that phenol would not cure it.

Now do not put me down as saying that Mr. Cheshire did not cure this disease, for I know he did cure it; and I will explain why he could cure it, and I could not, after I get through telling my experience.

I gave up the phenol cure on July 15, and I was just as confident on that day that I could cure my bees as I was the day I commenced it. I had a boiler made large enough to boil my hives in. I sent for Mr. D. A. Jones' book on the subject, put some colonies in starvation quarters and went to work cutting out combs and boiling frames and hives. About this time the hives emitted a strong stench that surpassed anything I ever saw reported. About this time, too, I was taken with a peculiar complaint of the throat, which I attributed at the time to the disease, but since then I thought it might have been produced by the mental anxiety I was in. I boiled everything, and when I starved a colony I put them in a clean hive with clean frames with foundation and fed them with boiled honey. I worked thirty in this way. I did not wait until time for sunken caps to appear, for I was a firm believer in the 'germ theory,' and the least indication of disease in the larvæ satisfied me that I did not cure it. I did not cure one; but I am ashamed to say two colonies were starved to death and two very strong colonies smothered. Please do not understand me to say that Mr. Jones never cured this disease; I know he has cured it. And I will explain why he could cure it, and I could not, after I get through with my own experience.

I began to wonder why the disease did not get any worse in some colonies that I had not worked on. I doctored the worst ones it is true, but they had it as long as the others, and I could not see why it did not get worse. (I will in the future give my opinion, which is founded on observation, why some colonies have the disease worse than others.) Just about this time I saw the following in *Gleanings* from Dr. O. M. Blanton, of Greenville, Miss.:

'Last year, about June 1, one of my neighbours, Mr. S. C. Vaught, discovered dead brood in his apiary. It first commenced with the capped brood, but soon extended to the larvæ, which in some instances in both soon became decomposed. On examination I found some of the capped brood with minute holes in the cappings and the decomposition complete. Some of the pupæ just dead I found reversed within their cells. There was a very disagreeable odour from the decayed brood, but not such as described in articles on foul brood. Upon inquiry I found ten apiaries within a radius of fifteen miles of me affected by it; some to the extent of fifteen per cent, and most of it confined to the capped brood. Two colonies in my home apiary were affected slightly. The "Refuge Apiary," with its bright new combs, had it in every colony, but it did not reach putrefaction before the bees removed the dead and filled the cells with honey, and the queen commenced laying as vigorously as ever. Mr. Vaught's apiary of about 250 colonies was so diseased that he determined to let them work out their own salvation, which they did. I uncapped the dead pupæ of some colonies and the bees soon cleaned the cells. Just before the discovery of this condition of things the bees gathered a great deal of dark, sour honey-dew (aphides), and I attributed the disease to that cause. This year, as far as I can learn, there is no evidence of the disease. It certainly cannot be the forerunner of foul brood, or we should have it this year.'

Nearly sick with worry, and almost despairing of ever curing my bees, I need not say that I gladly welcomed the small ray of hope that my bees possibly had the same disease as Dr. Blanton's. Still I could not help feeling pretty much like a broken merchant as I left my bees and went out into the country to get a rest, which I badly needed, having worked very hard for over two months of the warmest weather we have.

When I came back to Mobile about September 25 my bees were gathering fall honey, the disease had almost entirely disappeared, and even the three and four storey hives (six in number), in which I left a lot of diseased brood from other hives, had developed into populous colonies and had queens of their own rearing, some of which colonies did as well last year as any I had, but some never did amount to anything until I gave them another queen.

Feeling satisfied that my bees never had foul brood I went to work putting them in the best condition to winter, almost all of them being reduced to nuclei from my attempts to cure them. When I had finished that job I thought I would find the difference between the disease that my bees had and genuine foul brood. I have looked through my bound *Bee Journals*, *Gleanings*, and other bee-papers; I have read Dzierzon's experiments

and also Mr. Cheshire's; I have read Jones, Muth, and Kohnke, on the subject, and I have yet to see a symptom laid down for the detection of the disease that I have not witnessed among my bees. Hence the origin of my theory: and though if proven it will show our best authorities to have made a mistake, it will also show that the mistake in each case is pardonable though a very serious one.—G. H. Hoyle (*Amer. Bee Journal.*)

'CAUGHT IN THE ACT.'

[1189.] Putting aside, for a minute or two, the tone and temper of 'C. N. A.,' I will answer the questions he asks me, and also put in quite plain shape a small piece of what was intended to be information to people interested in bees and their wonderful habits and instincts. 1. 'How was I able to contemplate the symmetry of the cells of a well-filled and sealed super?' I answer, Through the glass. 2. 'How in such well-filled and sealed super there could be a bee in one of the cells helping himself to honey?' I answer, The bee was there, and, as I said, impaired the symmetry, &c., and so attracted my attention. But, perhaps, the relation of the story as plainly as I can put it will be best.

The super in question is a square box, wooden on three sides and on top, a glass plate forming the fourth side. Against this glass, when the super is full, six pieces of comb are fixed, leaving open to inspection a considerable number of cells, the glass itself forming one side of each cell. Being about to deprive the stock of this super, I noticed on looking in a bee *alive* in one of the cells that on the previous evening had been sealed up full. I called my gardener's attention to it, and on looking more closely we observed that the cell was then just finished sealing up, three or four bees round it at work. Later in the day I showed the bee *dead*, sealed up, to my wife, children, and several friends who happened to be at tennis. (I called the bee *himself*, perhaps leading 'C. N. A.' to conclude that I meant a drone. It was a *bee* himself, herself, or itself—not much matter.) For three or four days that bee remained in the cell, plain, against the glass. Then, as I said, the cell was opened, the dead bee removed, honey put in, and the cell resealed. I said that 'lime-honey' was put in, simply because our lime-trees were then in full bloom, and the bees in full work.

There, sir, is a plain statement of facts. I can produce twenty witnesses to the various facts that I relate. I can show the super and point out the cell, even supposing that my own evidence be put aside as unworthy of belief, and only worthy of other adjectives suggested as applicable to me besides 'lazy and yawning' by the kindly and courteous 'C. N. A.' Surely that gentleman—unless he be one of those who will believe nothing but what he himself knows—must see that my story may have a little interest for some perhaps not so learned as he may be, and that his appeal to you, sir, to protect the public from such 'effusions' may not be quite reasonable. I am not aware that my tale was told in a manner to be offensive to any one; it certainly was not intended to be. Let any lady or gentleman read the article from Fairlawn, and decide whether or not such a tone as pervades it is calculated to promote friendly intercourse and exchange of ideas between people who have a common object—truth,—be it about bees or those who labour with them.—Lazy Yawning Drone.

[At our correspondent's suggestion, we have communicated his name and address to 'C. N. A,' so that the latter gentleman, if so disposed, may have the opportunity of verifying the above statement.—Ed.]

FIXING COMB FOUNDATION IN SKEPS FOR CONDEMNED BEES.

[1190.] I quite agree with your remarks upon putting driven bees into empty skeps. Having tried two lots last August (6th and 9th), fed regularly, they did live, but both were very weak. In May you advised me to unite, but as they were thirty yards apart I let them alone; they have now filled their hives with comb and have a little honey. I trust they will gather enough stores from the heather to carry them through winter.

I succeeded in fastening with wire four half sheets comb-foundation in a straw hive and put two stocks condemned bees (weighing together five lbs.) on them about nine days ago; they very soon worked them out. I never heard of this being tried before, so I thought I might do some good by giving your readers a hint, for many like myself cannot afford the time to work and study the bar-frame system to any great extent. I shall (D.V.) take some eight or ten stocks next week again and intend giving them the same fair play. I will describe the way I fasten comb-foundation if desired. I have taken forty sections and thirty lbs. run honey from one box and about fifty sections and five lbs. run honey from the other box; I have only two boxes. I owe my success principally to reading the *British Bee Journal*, which I have received weekly since April. I enclose two samples of heather and ask your opinion on the same, and also on another shrub which my bees are very fond of visiting.—Cymro Bach.

[No. 1 is the common ling (*Calluna vulgaris*); No. 2, the cross-leaved heath (*Erica tetralix*); No. 3, Snowberry (*Symphorocarpus racemosus*), all noted for their honey-yielding qualities. If convenient, we shall be pleased to receive an account of your method of wiring foundation in skeps.—Ed.]

ONE-POUND BOTTLES.

[1191.]—Your correspondent Mr. E. B. Downes, who writes in the *Bee Journal* of August 4 (1175), is quite right with regard to 1 lb. bottles in many cases not holding 1 lb. I have some bottles from a firm who advertises in your columns, and to my extreme annoyance and aggravation they will only hold 14 ozs., and that in many hardly comfortably. They are decagon-shaped, and advertised in the very *Journal* Mr. Downes' letter appears in, and I consider this note of warning should be allowed to appear in the *Journal*.

I consider it a very reprehensible practice to make a bottle and call it a 1 lb. bottle when it really holds less. Of course I can only sell them for 14 ozs., but consider the trouble in doing so, the exact price has to be calculated, viz., $\frac{14}{16}$ or $\frac{7}{8}$ of the price of 1 lb., and on any increase or reduction there's another arithmetical calculation; but the worst of the matter is that customers are dissatisfied.—S. J. B.

[Manufacturers of bottles, as a rule, do not understand the nature of honey, and nearly always make the bottles either under or over weight unless they are instructed in the matter.—Ed.]

LIGURIAN BEES.

[1192.] I this day (10th August) divided a stock of bees in order to get some queen-cells made. Is it too late? Is there any chance of the queen being fertilised? I have raised seven young queens successfully from this stock this year, which are now all laying, and the earliest batch of three are now at the head of colonies on seven and eight frames full of bees and sealed brood, and I gave them each an additional frame of foundation to-day. The second batch of three are on five frames, each with a good lot of bees and brood, and I gave two a frame of foundation. The other did not want it, as one frame was only just worked out, and have only a little sealed honey at the top at one side. All those were from the one stock. I dare not give a single frame of brood to any of them, but I took a frame of brood and eggs from the parent hive to requeen another hive, and when I divided it to-day it had eleven frames full of

bees and brood. The queen was hatched in '85 from an imported Ligurian. She is fertilised by a black drone, and I raised five stocks from her last year, which are by far the best I have this year. The worst is better than the best of six blacks. None of them ever got any feeding. I did not look at them till the beginning of April, and they were all full of bees and brood, and enough stores. The parent stock wintered on fifteen frames, and they all had the floor-board down half an inch in front, and no doors all the winter. I have raised eleven stocks and requeened another from this queen in two years.—G. J. H.

[The fertilisation of the queen will depend on the presence of drones in your apiary or neighbourhood. In some parts they are still to be seen.—Ed.]

RAISING QUEENS.

[1193.] I should be glad if you would publish the following in your next issue if possible. In your issue of July 14th, page 297, 'Amateur Expert' gives instructions for raising young queens to replace old worn-out ones; and strange to say,—it seemed almost as though I had been communicating with him on the subject,—as at the time I received the *Journal* containing his instructions I was considering which would be the best way to obtain three young queens, as I was of opinion that my present queens were not so prolific as they might be. I read the instructions very carefully and determined to at once adopt his plan. I went straight to my apiary and selected my best queen, and placed her, under Simmins's direct introduction, in a hive that had an old queen—which I destroyed—and she was at once accepted. I then followed the advice given, with this exception, that instead of placing the hives apart from the rest I placed them between my other stocks; they were, therefore, only two feet apart, as I was pushed for room: the results further on will show that amateurs with small gardens need not despair.

On looking into the hive, which I had deprived of its queen, I found that I had twenty-two royal cells formed, distributed on four frames, and thirteen of them had occupants; so I decided to raise four queens, and divided the frames accordingly, adding one or two frames of hatching brood from other hives; I then covered up the hives and left them. But now comes a blow to my adventure. In your issue of July 21st, is a letter from 'W. B. Webster,' where, according to his account, I had done wrong; however, it was too late to alter, and I must rest and wait for the result. I may here add that I took good care to well supply the nuclei with plenty of young bees, for I brushed them off the combs in front of the hives, and so I am in hopes that with such care and the hot weather we had that my queens will be strong, healthy, and vigorous.

The following is the result of my nuclei:—A queen hatched in each; saw two leave their respective hives and returned fertilised, but I did not see the others; however, they are all laying, the last commenced August 11th.

I have taken away my other two queens now and introduced my new queens, and with the fourth I have made a new stock. All the queens have been introduced on Simmins's system, and the bees have been completely mixed up, and they have all made a jubilee meeting of it.—E. Wood, 49 *Temperley Road, Balham, S.W.*

SLINGING SECTIONS.

[1194.] I offer the following plan for your acceptance, in the hope it may be of use to your readers. Having several partly filled sections to extract from, I have found the arrangement I am going to describe answer well. I put the section into a tin box half an inch each way larger than the section. The lid fits on one end. I then sling the box in a piece of strong cord and whirl the box round my head, having left twenty inches or so of string to hold it by. Turn the string to the other side and whirl it again.

When both sides have been thus emptied, turn out the section and the honey, leave the section to drain on a dish, and proceed with the next. The tin box I use was one that contained, I think, mustard. It was too long, but right in section, so I cut off the extra length.—B., *Bideford, August 13th.*

GLAMORGANSHIRE AGRICULTURAL SHOW.

[1195.] In your report of the above show I see that dissatisfaction was expressed in regard to the award for extracted honey. I cannot claim to be a judge in honey, but I should certainly have thought that the presence of two or more kinds of honey in an exhibit would be sufficient, in a close competition, to disqualify it for first place.

I have, however, another complaint to make—namely, in regard to the driving in the bee tent. The lecturer first brought in a skep which it was discovered had one or more combs broken. He did not care for tackling this, so it was returned to its stand and another brought in. A few preliminaries, and the skep was upturned, revealing the presence of a very few bees. Driving commenced, and continued for about ten minutes, with the result that not half-a-dozen bees had gone up. The lecturer gave up the job, explaining his non-success by the fact of there being so few bees. Not to disappoint the onlookers, he again brought in the skep with broken comb. He turned this up, and managed to get about half the bees to crawl up in a very leisurely fashion. The broken comb, the expert now explained, obstructed the upward passage of the bees, so he turned the skep half way round in order to give the bees free egress. Alas! the bees would not budge. The audience—not a large one at any time—had dwindled to less than a score, and I, after witnessing the expert's exploits for about thirty-five minutes, left before seeing that stock of bees driven. I am curious to know whether the feat was accomplished in the end. I imagine that those who witnessed the operations in the tent were not very favourably impressed by this exhibition of one of the incidents of modern bee-keeping.

It is as well, perhaps, that I (though only a novice) should endeavour to show the lecturer (though an expert) wherein he erred. The weak lot he should not have attempted to drive, for if he had succeeded it would have made but a poor show. Nor should he have placed the inverted skep in a cheese-box, the edge of which came within four inches of the edge of the skep. Nor, again, should his tapping have been so spasmodic. In future let him have his hive so placed that the front may be struck anywhere from top to bottom, and let him strike regularly and without intermission (save when giving a necessary puff of smoke) until all the bees are driven out.—Welsh Novice.

GLAMORGANSHIRE SHOW.

[1196.] I think it is a pity that your correspondent, in his report of the Glamorganshire Agricultural Society's meeting at Aberdare, had not sent you a correct statement of facts. The honey with which I won the first prize was, as he states, of two different kinds, in colour and flavour, but there was no single bottle different from either of the two samples; each of the six bottles was filled at the same time, respectively from the same extracting, the same straining, and the same jar, so there could not possibly be any difference. I expect your correspondent has either seen or heard of a bottle which I had filled with the two kinds of honey for the pur-

pose of ascertaining their respective specific gravity, and which I brought with others on the afternoon of the second day of the show and sold, but which formed no part of my exhibit.

A little discussion took place at the time as to whether an exhibit should be uniform, from which I entirely dissented, and promised to endeavour to raise the question in your *Journal*, and shall be glad if readers will state their views. I intentionally exhibited two distinct samples. I could have shown twelve or more pounds of either, but it did seem to me better to show two good samples than one, for it is in nearly all cases as easy to stage twelve pounds of any particular kind of honey as one, and therefore one pound would answer the purpose as well as twelve. If quantity is to be the gauge, then the British Bee-keepers' Association are going away from their true function, and encouraging the larger bee-keeper as against the smaller.

I read that the prize to be given for the best twelve pounds of honey is to be taken literally, not for the twelve most expensive bottles, or the prettiest coloured honey, but for the best honey in density, flavour, and colour; of course, giving due regard to the staging; but if an exhibit is to be judged from a purely artistic point of view alone, the sooner we leave the judging in the hands of the Society of Artists the better. My idea is that a proper specimen of what one can produce would be samples of different kinds—twelve if you like—ranging over the whole season, commencing with the fruit and ending with limes and blackberries.

Mention is made of one of the samples in my exhibit being slightly granulated, which is true, and as far as my experience goes, I should say that any properly-ripened honey will granulate this season in a very short time. This particular sample had only been in the bottles about a week, was quite clear when put in, and had only been taken from the combs a short time before. I certainly think it would be wrong to pass by an exhibit because it was granulating.

As this is the first time I have exhibited honey, I am ignorant of the points to be made, and from what I read in the *Journal* no rules have yet been laid down for judging; but it does appear to me that this is a point that *can* be settled, whether an exhibit should be uniform or not.—W. H. Jenkins, *Exchange Buildings, Swansea.*

QUERIES:—PARALLEL *v.* RIGHT-ANGLED FRAMES, OR THE 'HOT *v.* COLD' SYSTEMS.

[1197.] Will any of my fellow bee-keepers kindly give me their experience as to the most judicious placement of combs in hives? Which plan is the more conducive to the health and prosperity of a colony, placing the frames parallel with or at right angles to the entrance? I have raised the question because I was struck a short time since when reading in the *British Bee Journal* (Vol. for 1886) an article by a contributor on foul brood that he had some hives with frames parallel and others with frames at right angles to the entrance. In the former he was troubled with foul brood, while in the latter he was exempt from it. Should this have been more than a simple coincidence, the freedom from disease in the latter case must, I judge, be attributable to the more perfect ventilation. I think, if my memory serves me, it was also stated in the same article that bees, following their own instincts, almost invariably build their combs at right angles with the entrance, ninety per cent of them at least, yet most manufacturers of hives place them parallel with the entrance. This subject appears to me to be one of some importance in this day of wide-spread foul brood.—E. Musgrove, *Sidcup, Kent.*

[We are fully in accord with your views on this subject, viz., that the plan of placing frames parallel to the entrance of the hive impedes ventilation and cleanliness, and encourages the propagation of foul brood. Long ago we discarded the system from our apiary. It is always with regret that we see prizes awarded to hives built on this plan. In a natural state nine colonies out of ten will build at right angles to the entrance side. See answer to 'Ligusticus,' Vol. XIV., p. 416 of *B.B.J.*—Ed.]

THE BEES.

When breaks at morn the beaming light
From out the dark and clouded skies,
The wakeful bee doth wing her flight,
And to the purple heather flies.

There in the rich and nectared heath
She finds the sweetest honey store;
Though oft her burden sinking b'neath,
She ever comes to gather more.

The humming of her drowsy song
The while she darts from flower to flower,
Floats in the air the bright day long,
Till even's calm and silent hour.

And if we might attend her home,
And trace her steps as she alights,
Might peer into the hidden comb,
Surprised we should behold the sights.

Upon the many waxen walls
A multitude of toiling bees,
All crowded in their narrow halls,
Yet moving to and fro with ease.

Here making comb of purest white,
There cleaning cells now old and dark,
Bee workers working day and night
Within their busy, teeming ark.

Whilst others bring the harvest sweet
From distant moors, and leas, and fells,
Or pollen, stored above their feet,
To feed their offspring in the cells;

Distinguished by his larger form
We quickly mark the lazy drone,
Of all the thousands in a swarm
An idle bee he is alone.

These brown capped cells, with ease we spy,
Contain the grub, or sealed brood,
Those mealy-looking ones close by
Are filled with pollen or bee food.

If eyes are sharp there may be seen,
Most likely where the brood is near,
Her majesty, the mother queen,
Surrounded by her subjects dear.

Unlike the workers, short in wing,
In body long, in colour light,
Dissimilar in head, and sting;
This is the queen who meets our sight.

Moral.

Ye little insects of the hive,
In love, and industry, and art,
Ye show in life how we should strive
Most manfully to act our part.

Oswin B. Hemy.

In order to make a pound of honey, the bee has to collect the sugar that is lodged infinitesimally in two and a half millions of flowers—a fitting image of the infinite number of individual acts and efforts of the will in the way of goodness by which the sweet graces of the Christian character are finally acquired and matured.

Echoes from the Hives.

Limerick, August 14th.—I drove some bees last week. Some of the skeps weighed 66 lbs.; out of ten the average was 48 lbs. On the whole it has been a good year for bees in these parts, though we have now no blossoms; everything is burned, still honey is coming in, and driven bees are working out combs.—Alba.

Broadstairs, Kent, August 15th.—The season is over now, or nearly so, though the drones are still tolerated—a fortnight later than last year. Swarms have been plentiful in the neighbourhood. I have succeeded in preventing my hives swarming, or, to be more accurate, have not caught them in the act. The chief honey flow came on with a rush, and lasted from 1st to 20th June. At one time late fruit bloom, sycamore, and white clover, were on together, and the bees would not look at a good patch of *Limnanthes* provided for their express benefit. Then came a period of comparative rest, until about 21st July, and even now a little honey is still coming in. Garden flowers seem to be of little practical value for honey, but are very useful as a sort of 'honey barometer.' If the bee-keeper noticeth the bees turning up their noses at a nice clump of borage he rejoiceth, and ordereth his honey bottles; but when he findeth many bees and few blossoms in his garden, then countermandeth he the honey bottles and procureth a store of sugar. I find Simmins's plan of placing starters in front of combination hives a very good one for preventing swarming, but the bees seem to prefer building them out to working in the sections if honey is scarce.—T. W. Oetzmann.

Chilton, near Thame, Oxon, August 15th.—The honey harvest of 1887 is over. It began late, with a bad spring for bees, and finished about the 15th of July here. The order of the day now is rob, rob from morning till night, there being a great many more bees in the parish than my own. The season has not been up to the average; the limes which abound here being quite a failure, some of them not opening at all. Swarms very few. My returns being—from twelve hives, six frames, six skeps,—three swarms, 350 lbs. of honey, all sorts included. One word as to wasps. I do not agree with one of your correspondents who say they are harmless insects. We are regularly infested with them here, nests in some places within a yard or two of each other; no sort of fruit can rest for them, and if you open a door or window the room is full directly. They carry off the dead bees from under my hives wholesale to their nests, besides robbing the hives and killing the live ones.—H. W. Perkins.

Appleby, near Doncaster.—A correspondent writing from Malvern Links wants to know how Lincolnshire bee-keepers manage to take honey by cwts., as he puts it, asking for information as to number of hives, &c. Like him, I have six hives of the common black bees and three years' experience. This year's result is over six cwts. of honey, including about 300 sections, the rest extracted; a record which might have been nearly, if not quite, doubled had it been worth while to do so, which, with honey at its present price, it was not. The way it is done is very simple, it is merely by the use of Cowan's hives and following the very clear instructions as to their working given in Mr. Cowan's *Bee-keepers' Guide*. I started with those abominations called Combination hives, but a few weeks' experience and the perusal of the above-named work speedily convinced me of the bad start that had been made, and I began again, discarding the old hives and substituting Cowan's as fast as I could make them. If your correspondent will go and do likewise no doubt the same success will attend his efforts. Black bees, too, seem to the writer good enough; he knows nothing about foreign bees, having had no experience of them, and for the matter of that only three years of any kind, but looking at the state of his hives during the past season he has come to the conclusion that if any bees are more prolific than the black they must be very prolific indeed, and would want hives six feet high.—H. Dumaresq (Colonel).

Hill Cottage, Sidmouth, August 6th.—There are more wasps' nests in this neighbourhood this season than I ever saw at any time. I have destroyed a great many and shall destroy more.—W. F. H. Majendie.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

H. C.—*Weight in proportion to Comb Surface.*—See 'Useful Hints,' p. 354.

A. Oxley.—*Microscope.*—There are many excellent works on the use of the microscope. We can especially recommend *Practical Microscopy*, by G. E. Davies (7*s.* 6*d.*); and *Preparation and Mounting of Microscopic Objects*, 2*s.* 6*d.*, by Thomas Davies. Both of these works are published by W. H. Allen, Waterloo Place.

R. Auld.—*Unsealed Sections.*—You cannot keep unsealed sections until next year. During the present hot summer there is no fear of the honey fermenting after extraction. Allow it to stand in an open vessel for a few days, in a warm room, and skim a small quantity from the surface, when the remainder may be put into glass or other jars and sealed down.

A. P. J.—1. *Honey.*—The sample of honey is of superior flavour. Speaking generally, we think such honey ought to realise 1*s.* retail and 8*d.* wholesale; but it altogether depends on the market it is taken to. 2. *Black Honey.*—The prevalence of honeydew from aphides is the cause of the dark colour of the honey. Keep Italians, or other Eastern races; amongst many hundreds of sections worked by these bees, we have not *an ounce* of dark honey.

J. W. P.—1. *Rate of Flight of Bees.*—There is a difficulty in calculating the rapidity of the flight of bees. Their presumed directness of flight, as indicated by the term 'bee-line,' is to be accepted with some modification; and refers more especially to the line adopted by them when returning from the fields laden with honey and pollen, as it saves both time and labour. But their mode of flight is 'to skim along in extended sweeps, alternately curving to the right and left.' An instance is given by a traveller of a humble bee accompanying a railway carriage proceeding at the rate of twenty miles an hour, though the wind was contrary, not merely with the same rapidity, but even greater, as it not unfrequently flew to and fro about the carriage, or described zig-zag lines in its flight. The aerial motions of a hive-bee are more leisurely; and they may be estimated to be at the rate of seventeen miles an hour. 2. *Distance of Flight.*—The general extent of the excursions of bees for forage is a mile. Huber says half a league, which, as a German league is our miles, would be two miles; but this is not borne out by his own practical observations. In *B. B. J.*, vol. xiv., p. 120, there is an authentic instance given of Italian bees being found on the heather 2¾ miles from their hives, and at 983 feet higher elevation; and we have even read of them being seen twice that distance.

T. Nixon.—*Dry Sugar.*—1. Dry sugar left in the hive during winter is not beneficial for the bees. All feeding for the winter should be completed by the end of September. Towards spring dry feeding may be resorted to in preference to syrup. The sample of sugar is very good, and would be found useful for the purpose of dry sugar feeding at the proper time. 2. *Queenless Colony.*—Most likely, as there is almost sure to be a colony having drones somewhere near. 3. *Pitched Paper for Quilts.*—No; use American cloth, having as little smell as possible. The smell of pitch is obnoxious to bees. 4. It is not used for the purpose. You can buy the paper already prepared at a nominal price. It is kept in stock by all good paperhangers; they use it as a first coating for damp walls. 5. *Sugar Bags.*—These answer the purpose very well. We should place eight or ten thicknesses.

E. Shotter.—1. *Bees.*—The bees forwarded are hybrids with very slight indications of foreign admixture. The so-called black bees have acquired their special black shiny appearance through having lost their pubescence either

from old age or disease; but they are not a different variety from the others. 2. *Black bees.*—'The handful of black bees, headed by a good queen,' have very probably contracted the disease called *Bacillus depilis*, or *Gaytoni*, and are gradually dwindling. 3. *A Pound of Bees.*—If your pound of bees consist of driven bees, we are afraid that you will not be able to rear them into a stock; but if the bees are of a cast of that weight with care they will pass through the winter, and in the spring may be raised into a useful stock.

J. J. H.—*Foul Brood.*—Presuming that you gave your bees the Cheshire Cure you would have great difficulty in getting them to take it at this season of the year if there is any amount of honey in the hive. Another disadvantage is that some of the honey is capped over and would be used in feeding the larvæ next spring. In this honey the germs of the disease lay dormant; therefore if you cured them now upon this honey being used you would have the disease again next year. Phenol will without cure 'foul brood' if the queen is not affected. By taking them to the moors in their present condition you would be committing a great injustice to your fellow bee-keepers whose bees are there; in fact, it is in a great measure owing to this description of carelessness—we might use a stronger expression—that the disease is spread abroad. Your best plan is to place the bees of both colonies in a well-ventilated box for twenty-four hours, then into a clean hive upon foundation, feeding them as fast as possible on syrup and the Cheshire Cure; it is rather late in the season for this: the combs of the affected hives to be melted down and the honey either boiled or destroyed, preferably the latter. If you use your hives again, and there is no reason why you should not, thoroughly saturate them inside and out with carbolic acid solution. This should be made by mixing together equal quantities of Calvert's No. 5 and glycerine, three ounces of each; then pour two quarts of boiling water upon it, stirring well. Do not let this solution get upon your hands, or it will cauterise them. Expose the hives to the air until the smell has passed off. Burn the old frames and quilts, as these can be easily replaced

F. Jewell.—*Observatory Hives.*—Unless the hives were seen by us it would be impossible to give an opinion. So much depends upon the 'get-up' of the hive; the condition and building of the combs, also the quantity and quality of the bees. No doubt the judges gave their awards in proper order to the hives whose relative qualities—taking the above as their standard—ranked foremost.

G. Hudson.—1. *Bees near House.*—It is not likely that the position prevented their working. 2. *Moving half a mile.*—Wait until November and then you may move the bees without loss. 3. *Earthen Pans for Honey.*—Honey will keep better in an earthen pan than in any other vessel; paper will do to tie down with.

Young Beginner.—1. *Extracting.*—After extracting from four out of ten frames place two of the emptied combs in the middle of the others and feed gently until the end of this month, then rapidly for a fortnight, or until sufficient stores are sealed. 2. *Robbers.*—Having contracted the entrance the bees will be able to repel attacks, and the dead bees which you see are the strangers who are trying to rob.

Alba.—1. *Honey and Pollen.*—If you pass honey and pollen through a patent honey squeezer, the former will be tainted by the latter. 2. *Obstinate Honey.*—Cut the comb into cubes and place in a conical bag before the fire, and the honey will exude.

Received from Mr. H. W. Perkins, Chilton, near Thame, Oxon, a bottle of extracted honey. We beg to thank him for trouble taken in forwarding it. The honey was of an excellent quality, and of good consistency and flavour.

Bee Swarming Extraordinary.—A swarm of bees took possession of the shop of Messrs. Thos. Fraser & Son, High Street, Dunbar, on Tuesday morning, July 19, and by their presence caused not a little inconvenience to the inmates, as well as temporary stoppage to trade. Two skeps were soon filled and taken out, still the shop swarmed with bees for the remainder of the day.

Show Announcements.

Giving Name and Address of Secretary, Date and Place of Show, Date of Closing Entries. Terms: Three Insertions and under, Two Shillings and Sixpence; additional insertions, Sixpence each. No charge made to Associations whose Shows are announced in our general Advertising Columns.

August 24.—Lancaster Agricultural Show. W. Liddell, Hon. Secretary, Dale Street, Lancaster.

August 26.—Craven Agricultural Society's Show at Skipton. Secretary, Richard Wilson, Skipton. A 2889

August 31-Sept. 3.—Royal Manchester and Liverpool Agricultural Show at Manchester. W. Lees McClure, Hon. Secretary, The Lathoms, Prescot, Lancashire.

Business Directory.

HIVES AND OTHER APPLIANCES.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
Appleton, H. M., 256A Hotwell Road, Bristol.
Baker, W. B., Muskham, Newark.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
British Bee-keepers' Stores, 23 Cornhill, E.C.
Burtt, E. J., Stroud Road, Gloucester.
Edey & Son, St. Neots.
Howard, J. H., Holme, Peterborough.
Hutchings, A. F., St. Mary Cray, Kent.
Meadham, M., Huntington, Hereford.
Meadows, W. P., Syston, Leicester.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
Stothard, G., Welwyn, Herts.
Webster, W. B., Wokingham.
Woodley, A. D., 26 Donnington Road, Reading.
Wren & Son, 139 High Street, Lowestoft.

HONEY MERCHANTS.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
Baker, W. B., Muskham, Newark.
Baldwin, S. J., Bromley, Kent.
British Bee-keepers' Stores, 23 Cornhill, E.C.
British Honey Co., Limited, 17 King William St., Strand.
Edey & Sons, St. Neots.
Howard, J. H., Holme, Peterborough.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.

FOREIGN BEES AND QUEENS.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
Baker, W. B., Muskham, Newark.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
Benton, F., Munich, Germany
Edey & Sons, St. Neots.
Howard, J. H., Holme, Peterborough.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
Simmins, S., Rottingdean, near Brighton.

METAL ENDS.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
Baker, W. B., Muskham, Newark.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
British Bee-keepers' Stores, 23 Cornhill, E.C.
Edey & Sons, St. Neots.
Lyon, F., 94 Harleyford Road, London, S.E.
Meadows, W. P., Syston, Leicester.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.

COMB FOUNDATION.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
British Bee-keepers' Stores, 23 Cornhill, E.C.
Edey & Sons, St. Neots.
Howard, J. H., Holme, Peterborough.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
Stothard, G., Welwyn, Herts.

HONEY GLASS MERCHANTS.

Abbott Bros., Southall, and Merchants' Quay, Dublin
Pearson, F. Stockton Heath, Warrington.

Special Prepaid Advertisements.

Situations, Publications, Bee Plants, &c.—Twenty words and under, One Shilling; for every additional Three words, One Penny.

Exchange Column.—Sales of Honey and Second-hand Goods.—Intended to aid Bee-keepers in the disposal of Bee-produce and Appliances for which they have no further use. Terms: Twelve words and under, Fourpence; for every additional Three words, One Penny extra.

No reduction made for continuous insertion.

1. SIMMINS' ORIGINAL NON-SWARMING SYSTEM includes also other subjects of the first importance, reduced to 1*s.* 1*d.*, post free.

2. SIMMINS' METHODS OF DIRECT QUEEN INTRODUCTION, 6½*d.* Of the AUTHOR, Rottingdean, Brighton; NEIGHBOUR & SONS, 149 Regent Street, and 127 High Holborn; and J. HUCKLE, Kings Langley, Herts.

BEE-KEEPING, Plain and Practical: How to Make it Pay. By A. RUSBRIDGE, 1*s.* 6*d.*, post free, 1*s.* 8*d.* Address J. HUCKLE, Kings Langley, Herts. A 1253

THE MANAGEMENT OF STRAW SKEPS. Designed to teach the Cottager how to obtain the best results at the least possible cost. By attention to its teachings, Cottagers will be enabled to make their Bees a more profitable source of income than hitherto. Price One Penny. Six copies and upwards, post free. J. HUCKLE, Kings Langley.

WANTED.—Copies of *British Bee Journal* for January 7th, 1886, and Nov. 1873. Full price given. Apply J. HUCKLE, Kings Langley, Herts.

HONEY (1887) PURCHASED or Taken in Exchange. SECTIONS, 4¼ × 4¼ × 2, of good flavour, pale colour, well filled and capped. No other accepted.
EXTRACTED, of best quality and appearance only.
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HONEY.—1lb. Sections, 8*s.* 6*d.* per doz. Run, 8*s.* per doz. bottles; Screw-caps, 8*s.* 6*d.* per doz. Address C. N. WHITE, Somersham, Hunts.

COMB HONEY, 4½ Sections for Sale. Address J. C. LAMBERT, Sunk Island, Hull. A 70

TO SECRETARIES OF ASSOCIATIONS.—C. N. WHITE, Somersham, Hunts, 1st Class Expert, and Expert to Cambs. and Isle of Ely Association, will be glad of engagements from Aug. 5 to Sept. 16. For Lecturing or Expert Tours. Expenses only required.

WANTED, Condemned Bees in exchange for Appliances or for Cash. Address ABBOTT BROTHERS, Southall, London, and Dublin.

CONDEMNED BEES, 1*s.* 3*d.* per lb. Guaranteed free from Foul Brood. Address H. DOBBIE, Thickthorn, Norwich.

LEAVING THE COUNTY.—Few Cowan Hives, new; ditto in the flat, very cheap. Cowan's Bee Trap, free, 2*s.* 8*d.* Woiblet Spur, 1*s.* 6*d.* Extractor, 22*s.* 6*d.* List sent. Two Hundredweight Sugar for Feeding Bees, pure Cane, 20*s.* per cwt., 11*s.* 56 lbs. Address HON. SEC., Northants B. K. Association, St. James', Northampton. A 83

BEE TENT for Hire. Apply HON. SEC., Northants Bee-keepers' Association, St. James', Northampton. A 84

WANTED. — Bees. Three lots. Vigorous Queens. Weight 5 lbs. each. Address B., Ivedon Cottage, Springfield Road, Kingston-on-Thames. A 86

DRIVEN BEES, 1*s.* per lb. Packing extra. A district where Foul Brood is unknown. Address E. GARNER, Broom, near Biggleswade, Beds. A 87

STOCKS OF BEES.—Have to Sell for an old Cottager, now too feeble to manage Apiary, 12 large, well-made Straw Hives, full of Honey and Bees, 12*s.* 6*d.* each, or £7 the lot. Address S. S. GOLDSMITH, Boxworth Rectory, St. Ives, Hunts.

ADVERTISER will give 1*s.* per lb. for Driven Bees, safely packed. Address DOUGLAS COOPER, Normanton, Derby.

TAKE NOTICE.—A rotten bad Stock of Bees in Bar-frame Hive (Abbotts') to be sold Cheap. Price £1 5*s.*, or as much more as the Purchaser likes to fork out. Address W. RUHL, Swanmore, Bishops Waltham. A 89

EXTRACTOR WANTED.—Exchange ninety-eight 3*d.* numbers *Journal of Horticulture* from Aug. 1884 to 1886, December or offers in Bee Furniture. Addres W. HUNKIN, Poole, Dorset.

FOR SALE.—*British Bee Journal*, half-bound. What offers? Extractor or Bee Furniture. Address W. HUNKIN, Poole, Dorset. A 90

FOR SALE.—Six Strong Heavy Stocks of Bees 12*s.* each. Cash offers invited for Honey in 1 lb. sections. Address MALTSON, Covenham, near Louth, Lincolnshire. A 91

FOR SALE.—Three Good Stocks of Bees in Skeps. Price 1*l.* per stock. Address X., Offenham, Evesham. A 92

MAGIC LANTERN SLIDES for Sale on Natural History of Bees. 34 Slides 3¼ × 3¼, 20*s.* Address J. H. ATKINS, Naturalist, Dunmanway, Cork. A 93

WANTED Prime Quality 1 lb. Sections Honey. Address stating price to WHITE, c/o W. T. Joyce, Farnborough, Hants. A 94

WAX EXTRACTOR (Blow's) for Sale, as Good as New. Cost 15*s.* Will take 7*s.* 6*d.* Address A. WOOD, Esq., Bellwood, Ripon. A 95

RAYNOR EXTRACTORS.—A few last year's make of machines at 21*s.* to clear out. Greatly improved for present season. See *British Bee Journal* for July 28. Address W. P. MEADOWS, Syston, Leicester.

THREE RAYNOR REVERSIBLE 30*s.* EXTRACTORS for Sale, Meadows' make, price 25*s.* each, or 24*s.* each if the lot are taken.
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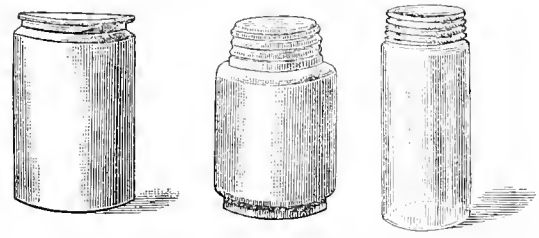

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THE BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, Cambridge Circus, W.C.

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Editorial, Notices, &c.

MARKETING HONEY.

That is the very thing we want to know about! It has been said we are a nation of shopkeepers; that is daily getting less true of us, as we are fast becoming, if we have not already attained to the position,—a nation of costermongers. The question now is, not what a certain thing cost to produce, but what will it fetch. Honey is no exception to this rule. The trouble of 'raising' it, with many, is a small thing compared with the trouble of disposing of it after it is raised. You can rush off to the Honey Company of course, as many did in the fall of '85, to the benefit of its shareholders and the injury of your pockets, but if you want a good price you must take a little trouble, and, what is by no means a small factor in the business, use your wits.

This is a day of 'putting on the market.' Look at your match-boxes, go and buy a farthing's worth of pins; turn where you will, from artists' colours to Nubian blacking, or from Yorkshire relish to Pears' soap, the package looks as if it cost the largest half of the money. The British Honey Company was not slow to take the hint, and Mr. Woodley soon followed suit, so that if we want show-cases for section honey, we have them already provided to our hands; and what I want to press upon you is, if you wish to get a good price for your honey, you must resort to some such device to secure it.

Your first aim must be to *make a name* by always putting up your goods in the same style, which will in time become a kind of trade-mark. If it is extracted honey, always use the same shape and size of bottle, even to the style of your screw cover, and the colour of the string you use to tie down your parchment if you use the 'tie-down' bottles. The same rule applies to the sections, you must use the same kind of fancy boxes, or, if you prefer to 'dress' your sections yourself, as I told you last year I do mine (see page 407 of last Vol.), you must always keep to the same style, and perhaps it may be beneficial to use only one colour paper. For labels you cannot be too neat. Have your own distinctive mark by all means, but do not attempt to copy the Canadian lobster tin labels.

There is another matter which is of far more importance, it is *cleanliness*. Let everything go out of your hands as if fingers had never touched it; let the wood of your sections be as white and spotless as when they left the planing machine; clean off every speck of propolis; and last, and most important of all, so fix your foundation, be it whole sheets or only guides, so that when it is cut out of the section and laid on a dish preparatory to going on the table, there is not a long, dirty patch of something indescribable to mar the appearance of the luscious slab of honey, and bring discredit to your fair fame. These remarks may seem frivolous, but allow me to assure you they are no mean items on the narrow and thorny road to success.

If there are any local gentry in your neighbourhood, try to induce them to buy. If they only take a small sample, do not be discouraged; if it is what it should be, they will come again. As to price, do not open your mouth too extra wide; if you do, Nemesis will be on your track, and that market will be spoilt for you for ever. Now go to a respectable grocer, or chemist, or Italian warehouseman; do not ask him to buy, but ask him to sell for you. Offer him twenty per cent discount on what he disposes of, you to keep up his stock to a certain amount as he disposes of it, and he to pay you for what he has sold on the first of every month. Give him to understand he need not sell the show-cases, but keep the sections in them as a protection, and if any of his customers prefer to take cases, they will be the price of the cases extra. If he is a tradesman with whom you can profitably deal, and you can take his groceries instead of money, all well and good; but that is a matter for your personal consideration. After a season of this arrangement, you will most likely find he will prefer to buy of you, and run his own risks, and get what discount he chooses to fix, but your great point is to get him to start. The more respectable his customers, and the more prominent his business position, the greater your chance of success, and the larger the discount probably he will require.

This is no new fancy eliminated from 'A E.'s' cranky brain, but has been successfully worked for the past three years under the eyes of—AMATEUR EXPERT.

METEOROLOGICAL OBSERVATIONS FOR JULY.

The summary of meteorological observations at Hodsock Priory, Worksop, Notts, has been sent to us by Mr. Joseph Mallenger. During July the mean temperature was 63·8°. Maximum on the 3rd, 85·°; minimum on the 6th, 37·7°. Maximum in the sun on the 15th, 139·2; minimum on grass on the 18th, 31·5°. Mean temperature of air at 9 a.m. 66·7°. Mean temperature of the soil 1 foot deep, 63·5°. Total duration of sunshine in month, 228 hours, or 44 per cent of possible duration; no sunless day. Total rainfall, 1·46 inch. Rain fell on ten days. Average velocity of wind, 8·3 miles per hour. Velocity exceeded 400 miles on one day, and fell short of 100 miles on five days. Approximate averages for July—Mean temperature, 61·2°; rainfall, 2·36 inches. Sunshine (ten years) 163 hours. A very bright, warm, and rather dry month. The mean temperature is higher than any previous year since 1876. Sunshine more than any of the previous six years. Rainfall small, but not exceptionally so; coming, however, after a very dry June, the deficiency was more noticeable. During the past six months only 6 inches of rain have fallen, as compared with an average for the period of 11⅓ inches.—*Journal of Horticulture.*

ASSOCIATIONS.

ABERDARE FLOWER SHOW.

The show of honey which was held in connexion with the above show on August 18 was a distinct improvement on last year both in quantity and quality. Nearly half a ton was staged, and with few exceptions was put up in a much more attractive form than it was last year. The section honey shown by Mr. Guy, of Cardiff, was a capital exhibit, the sections being well filled and even in appearance.

In the class for the largest collection of extracted honey the prizes were taken by some very good honey, mostly white clover, but it would be advisable if the committee could see their way to defining the class more strictly, as the judges had to decide between the merits of two exhibits, one containing 300 bottles of dark-coloured honey, which had already begun to granulate, and a much smaller exhibit of some sixty bottles of first-class white clover honey. The rules defined 'largest and best,' but the judges were unanimous in awarding the prize to the best rather than to the largest.

In the class for twelve 1-lb. sections there was no difficulty in awarding the prize to Mrs. Price, as her sections were very much superior to any of the other ten exhibits. In the class for twelve 1-lb. bottles Mrs. Price was again successful. The second prize was awarded to Mr. T. W. Rake, but it was pointed out to the judges after the prizes were awarded that there was some dust in the honey, due probably to the bottles not having been properly cleaned; but the honey was so superior in flavour to all the others except the one which was highly commended, that even if the judges had perceived the defect it was so slight that its position in the prize list would not have been altered.

During the afternoon manipulations took place in the bee-tent, and the modern system of bee-keeping was explained to large and attentive audiences.

Two candidates were examined for third-class expert's certificates, and W. W. Williams, 14 High Street, Newport, passed a highly-satisfactory examination, his driving and manipulation being extremely good. The other candidate passed in driving, but failed to find the queen until some time had elapsed.

It would be an advantage if the rules for examinations were not quite so strict, as this candidate was as well qualified to act as expert as many whom I have passed. There always must be a certain amount of luck in examinations. One candidate may find the queen on the first comb he picks up, while another may have to look through nearly all the combs until she is found. As the examinations are held all through the country, and the Education sub-Committee have not them under their immediate control, rules, no doubt, must be made; but it would be an advantage in those cases where the examiner was satisfied with the knowledge of the candidate, even if he had not passed according to the regulations, to refer the matter for the decision of the Educational sub-Committee.

The following is the prize-list:—Class I. For the largest and best collection of super honey: 1, W. Gay, Cardiff; 2, James Lewis, J.P. II. Ditto, extracted, in 1-lb. or 2-lb. bottles: 1, G. H. Rake, Ysenborwen; 2, E. Richards, Talyllyn. III. Twelve 1-lb. sections: 1, Mrs. Price, St. David's Vicarage, Brecon; 2, Miss Price, Brecon. IV. Twelve 1-lb. bottles extracted: 1, Mrs. Price; 2, G. H. Rake; H.C., Miss Price. V. Best samples of beeswax, not less than 2 lbs.: 1, Mrs. Price; 2, Miss Price. VI. Best kept hive of bees within a radius of three miles: 1, James Lewis, J.P.; 2, D. P. Davis, Commercial Street, Aberdare. The judges were Mr. Thomas, Ysenborwen, and—GEO. WALKER, *Wimbledon.*

WELLINGTON (SOMERSET) COTTAGE GARDEN SOCIETY.

The above Society held its annual meeting at the Town-hall, Wellington, Somerset, on Friday, August 6th. The hall was tastefully adorned with flags, and the arrangement of the cottagers' exhibits was very creditable and effective. Besides the flowers and vegetables there was an exhibition of honey. Though not very large, we were pleased to see it as indicating the interest taken by the cottagers in that part of the country in this industry; and though small, there being but six exhibits, we have hopes that it may be increased on some future occasion. Most of the exhibitors had made use of large bell-glasses for having their surplus stored in, but happily this is a plan now becoming obsolete in this country, thanks to the efforts of the British Bee-keepers' Association and its many branches scattered throughout the shires. Combs worked in bell-glasses have to be cut in pieces before they can be used, whereas the same weight of honey stored in a crate of sections is available for use at any moment without damage or mess, as could be seen by the specimens on the table. There were some fine diagrams and a set of beautiful Italian plates exhibited, illustrating the anatomy and physiology of the honey bee; also several small glass cases containing specimens of various kinds of comb, queen-cells, &c., the society being indebted to Mr. C. Tite, Shutes House, for this part of the honey exhibition. But it was evident that the local bee-keepers have yet much to learn, and that there is a fine field open in the neighbourhood for a new branch of the Somerset County Bee-keepers' Association, when the honorary Secretary (Rev. C. G. Anderson, of Otterhampton, Bridgwater) can spare time to set it afloat. Two excellent bar-frame hives were sent to the show by Mr. Edward Pyne, hive-maker, Yeovil. They were admirably made, well finished, and contained the latest improvements. Moreover, one of them was offered at a price that will meet the requirements of intelligent cottagers, for whom bee-keeping in the rural districts offers a source of much pleasure and profit.

SOMERSET COUNTY BEE-KEEPERS' ASSOCIATION AT TAUNTON FLOWER SHOW.

The twentieth annual show of the Taunton Deane Horticultural and Floricultural Society was held on Thursday, the 11th inst., in Vivary Park, Taunton, and notwithstanding the dryness of the season the exhibits in all departments were of extraordinary excellence. The interest manifested in the exhibition by the inhabi-

tants of the town and county showed no falling off, and throughout the day the Park was visited by several thousand people.

The exhibition of hives, honey, &c., was a great advance on previous years, both in the number and the quality of exhibits. The principal exhibitors of apicultural appliances were Messrs. Abbott Bros., of Southall, who sent a collection containing almost every article that bee-keepers can require, or fancy they require. Messrs. Abbott's articles were good in quality, reasonable in price, and admirably arranged. Next to them came Mr. E. J. Butt, of Barnstaple, with a smaller but useful collection, which took second prize. Mr. C. Lewis, of Taunton, sent a number of cheap plain hives, but not for competition. Mr. Edwin Pyne, hive-maker, of Yeovil, also sent two excellent hives, one for well-to-do amateurs and the other for cottagers. The show of honey was also large and good. The chief exhibitor was the Rev. H. F. S. Gurney, of Stoke St. Gregory, one of the principal bee-masters in Somerset; but the most attractive exhibit was that sent by Mr. William Peirce, of North Petherton, a charming collection of comb and run honey, admirably put up. The increased number of exhibitors in this department must be most cheering to the Rev. C. G. Anderson, the honorary secretary of the Somerset Bee-keepers' Association, who has laboured most assiduously for years past to popularise bee-keeping in the county, and to Mr. W. B. Maynard, the zealous secretary of the local branch of the Association. A very interesting and attractive feature of the bee show was the observatory hives. Messrs. Abbott Brothers took the lead here again with a splendid and novel hive, containing six frames stocked with the beautiful Italian bees. The Rev. C. G. Anderson was second with a well-constructed observatory of the ordinary type, but containing many improvements and several most interesting features. Altogether the bee and honey department was most attractive, and the large tent devoted to it was crowded with spectators. The manipulations were held in a separate tent and were conducted by Mr. John Ayres, of Southall, the Rev. C. G. Anderson giving the descriptive lectures and answering numerous questions.

The following is the prize list:—

Honey, &c.—Best collection of honey-comb and run, from one apiary—1, W. Peirce, Bridgwater; 2, Rev. H. F. S. Gurney, Stoke St. Gregory; 3, Miss E. J. Elliott, Taunton. For the best exhibit of sectional super honey, each section not to exceed three lbs. in weight, the total weight of each entry not to be less than twelve lbs.—1, Rev. H. F. S. Gurney; 2, Miss Elliott; 3, Henry Perry, Williton. For the best glass super of honey—1, W. Hawkes, Newberry; 2, W. W. Jones, Williton. For the best straw super of honey—1, J. Taylor; 2, E. Cattle. For the best exhibition of run or extracted honey in glasses, each glass not to exceed three lbs. in weight—1, William Peirce; 2, J. E. Heydon. Best observatory hive with a complete stock of live bees, all combs to be visible on both sides—1, Abbott Brothers; 2, Rev. C. G. Anderson.

Offered by the Somerset Bee-keepers' Association.—Best and most complete collection of hives and bee-keepers' appliances—1, Abbott Brothers; 2, E. J. Butt, Barnstaple. Best stock of bees in straw skep for manipulating combs not to be less than two years old—1, H. Riddles, Staplegrove; 2, F. Jewell, Bridgwater.

MAER (STAFFORDSHIRE) FETE AND HONEY SHOW.

This, the first show at Maer, proved to be a decided success, both in the number and quality of the exhibits, especially in Classes II. and IV., which were very good throughout, and this success ought to be an incentive to future efforts in the same direction.

The work of judging was entrusted to the Rev. G. R. Bailey, of Madeley, Staffordshire, a gentleman who takes a lively interest in matters of this kind. Mr. J. R. Critchlow, Hon. Sec., being an exhibitor; Mr. Bilton, a member of the fête committee, was appointed steward to accompany the judge in making his awards and attaching prize cards. Mr. Bailey, finding it a difficult task to finally decide some of the awards, as some of the exhibits were so near in quality, called in the assistance of Mr. Rollins, expert to the S. B. K. A., and their awards gave general satisfaction. Mr. Critchlow's exhibit included sections displaying the letters 'S. V. R. 7,'* he also staged 'J. R. C. Pure Honey,' but not for competition. The Steward and Hon. Sec. of the show are to be complimented upon the admirable manner in which the arrangements were carried out. The S. B. K. A.'s bee-tent, in which Mr. Rollins, the expert, manipulated bees, was a centre of attraction during the afternoon and evening.

The following are the list of awards:—

Class I.—For the best twelve 1-lb. or six 2-lb. sections: 1, J. R. Critchlow, Maer Farm; 2, H. Wood, Lichfield; 3, S. B. Fox, Maer. V. H. C., Mrs. Yawdrey, Maer Vicarage.

Class II.—For the best exhibition of 12 lbs. of run or extracted honey in glass jars: 1, E. Clowes, Blackbrook; 2, G. Arkinstall, Whitmore; 3, E. S. Hinchliffe, Mucklestone. V. H. C., T. Bailey, Whitmore; and Jos. Thompstone, Shortwood; and the judge commended the whole class, which consisted of fifteen exhibits.

Class III.—For the best exhibition of not less than 2 lbs., nor more than 5 lbs. of pure beeswax: 1, J. R. Critchlow; 2, Edward Clowes, Milton; 3, T. Bailey, Whitmore.

Class IV.—For the best exhibition of honey in any form not to exceed ¾ cwt. in weight: 1, and silver medal of S. B. K. A., E. Clowes, Blackbrook; 2, and bronze medal, S. B. Fox, Maer; 3, J. R. Critchlow. V. H. C., H. Wood, Lichfield, and G. Arkinstall, Whitmore.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. Huckle, *Kings Langley, Herts (see 2nd page of Advertisements).*

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

LINCOLNSHIRE BEE-KEEPERS' ASSOCIATION.

[1198.] In reply to report of the above in *Journal* of 28th July, page 322, I am exceedingly sorry that the Association is in such a ruined state, as it has in the past been productive of much good. For some years the members in this district, which at one time numbered about seventy, have been falling off, for the simple reason they wanted to know what they were contributing to.

I am not aware of any report since 1880, and at the present I only know of two members left. I enclose the rules, scarcely any of which have been carried out for years, and at the present time I only know of one officer left (the Honorary Secretary). There are some bee-keepers in this district with a good knowledge of their work, who are doing their best in the advancement of apiculture and who are ready at any time to assist in the formation of a new Association upon sound principles. I shall be glad to know the feeling of the other districts upon the subject. I may say we have a gentleman of affluence and ability in this district, who, I think, might be prevailed upon to act as Secretary in the formation of

* Or V. R. 87.

a new Association with the assistance of the B.B.K.A. —North Lincolnshire.

[We think it would be a great misfortune if so good an Association as the Lincolnshire were suffered to lapse. According to the rules sent us, there has been no Association for several years. We should think there would be no difficulty in re-constructing the Association. Write to the Secretary of the B.B.K.A., who, we feel assured, would be pleased to assist in so useful a work.—Ed.]

'THE HONEY CROP AND PRICES.'

[1199.] This is the heading of a few lines in *The American Bee Journal* of August the 10th, which I think may with advantage be copied into the *B.B.J.*, that your readers may see that we may reasonably hope to get a fair price for the very small 'honey crop' harvested in the United Kingdom, as the market is not likely to be glutted with new honey from the United States or from Canada, where the crop is also very short.

'We have several times cautioned those having any honey to sell to hold back for the advance in prices, which must surely come very soon. In reference to this matter, Mr. S. F. Newman, of Norwalk, O., writes as follows:—"The honey crop in this section is almost an entire failure. Probably about one-tenth of a crop has been gathered. There is no question as to the advance in price. It certainly will reach 20 cents within sixty days." What little hope there was for a fall crop is daily dwindling. The extremely hot and dry weather has 'burnt up' almost everything, and all crops are suffering, and prices of every crop are advancing. Do not sell any honey until the end of September, is the best advice that can be given. Really, this year's crop of honey is but little, if any, more than will be required for winter stores for the bees, if used for that purpose. Prices should be *doubled* at least within two months.'

In the same number of the *A.B.J.* there are reports from different States, as follows:—

'No Surplus Honey.—E. Liston, Virgil City, Mo., on July 26, 1887, says: "In this part of the country the surplus honey crop for 1887 is a ruinous quantity. Unless it is extremely favourable for fall production, it will be as nearly a failure as we have had for eighteen years."'

Half a Crop from Basswood.—Edmund R. Buller, Campbellsport, Ont., on July 26, 1887, says: "Bees have done very poorly here this season. Clover and basswood have not produced more than half a crop, owing to dry, hot weather. Basswood trees were loaded with bloom, yet many of them were scarcely touched by the bees. There will be very little fall honey if we do not get more rain soon."'

'No Honey, &c.—V. W. Keeney, Shirland, Ills., on August 1, 1887, says: "I have not taken one pound of honey from forty colonies, and had only one swarm. I have been waiting for some time to see the 'big' reports come in, but everybody seems to be quiet this season. There is no honey in this part of Illinois, and a good prospect to feed the bees and all other stock soon."'

As there does not seem to be any fear of foreign competition, those who have honey to dispose of should hold for fair prices, and not rush the honey into the market all at once to their own disadvantage.—John M. Hooker.

LEE'S SECTIONS.

[1200.] I beg to send you herewith one of Lee's Patent Sections, that you may see the perfect way in which it is filled without pop-holes. I obtained a few of these sections through the kindness of a friend, and they were put on the hive quite the tail-end of the white clover harvest, and before the major part of the heather came into bloom.

The one sent is a fair sample. The ready way the sections were put together, and full sheets of foundation fixed, was quite a treat, after the old way of fixing with melted wax. I am sure one trial will be sufficient to satisfy any practical bee-keeper of their superiority over all others, if they can be obtained at a reasonable cost. Had I used these sections exclusively, the superior appearance and uniformity of the comb and rapidity with which it was built out would have very considerably increased my receipts.—Wm. Soar, *The Apiary, Chobham, near Woking, Surrey.*

[The sample received fully bears out the above statement. It is perfectly even, and pop-holes are absent. The honey was most delicious. We had on Saturday last the pleasure of meeting Mr. Lee at the Exhibition of the Middlesex B.K.A. at Southgate. He had with him some beautiful specimens of one and two-pound sections, worked out in his new sections; they were from the apiary of the Rev. G. Raynor, of Maldon, Essex. These were simply perfect in colour and evenness, and with no pop-holes. Mr. Lee speaks very hopefully of his ability to produce his sections at a cost which will enable him to compete with those imported from America.—Ed.]

EFFECTS OF A STING.

[1201.] A few days ago my wife was stung on her head by a bee, and in a very few minutes she felt a fearful irritation like nettle-rash from head to foot, and then commenced to swell, especially about the neck and face, and then followed faint and sickness, which continued for some hours. Will you kindly tell me what is the best treatment in such cases? I may say she is fond of a few stings, but has never had such serious effects before.—W. Elfred.

[A case like the above is, happily, not very common among bee-keepers. It is known in medical language as *Urticaria*, or nettle-rash, and often follows from eating shell-fish, cucumbers, mushrooms, &c. The recipe of a lotion which may be used with advantage if the nettle-rash appear will be found in vol. xiii. p. 235. The other portion of your letter will be forwarded to the Secretary of the British Honey Company.—Ed.]

BIRDS, REPTILES, AND BEES.

[1202.] It has been for some time rather a vexed question as to whether the graceful-flighted swallow is an enemy to our busy little labourers, the bees. Having now a good opportunity of noticing the behaviour of various birds in their attentions, or not, to bees, I have come to the conclusion that swallows cannot be placed in the category as apicides—excuse the coining of this word. My apiary is situated in a meadow adjoining the garden, and separated by a quickset hedge; it is railed off from this meadow by a wire fence, the top wire of which is barbed in order to prevent the curiosity of the cows leading them to a too close acquaintance with the hives. Upon these wires sometimes as many as four or five fly-catchers (*Muscicapa grisola*) sit waiting for their prey. I shall procure some of them, and examine their crops. The red-backed shrike (*Lanius collurio*) sits on the posts, and, I am strongly of opinion, impales my bees on the barbs of the wires, as in two instances I have found the abdomens of workers so situated. But it is more particularly to the swallow tribe that I have given my attention. I had failed to notice any act on their part that would lead me to suppose any damage might be done by them to the bees, and now, so far from supposing such to be the case, I find that the bees themselves are obnoxious to the swallows. Being a dull, cloudy morning, I stood watching a party of swallows, both chimney swallows (*Hirundines rusticæ*) and house martins (*Hirundines urbicæ*), hawking around over my hives. The morning was favourable for observation on account of the absence of any glare of light, so that their

motions could be followed with ease as they swooped over head or anon glided along close to the ground over the meadow. Not a single bee did they catch; numbers were flying around; but guess my surprise when I saw the bees 'go for' the swallows. Their attacks were skilfully avoided: sometimes two bees would follow a single swallow round and round, but seemingly unable to overtake it in its swift aerial flight. The swallows evidently disliked the bees' attentions, as they frequently avoided them by doubling away from the point of attack. This continued for some ten minutes, until at last the swallows took their departure, evidently dissatisfied with their reception. I noticed the same thing occur with a starling (*Sturnus vulgaris*), two bees chasing it as it flew across the apiary; they may have thought it was a swallow, but the starling never deviated from its course, evidently taking little notice of its irritable pursuers. Although there are numerous tits (*Parus major*, *P. cærulens*, *P. caudatus*, and occasionally *P. ater*), I have not seen one attempt the life of a bee; but no doubt, when other food gets short, they will commence their depredations; any caught actually at this work will have short shrift given them. Toads are exceptionally numerous, but although many of my alighting-boards touch the ground, I have not yet seen any at their, I know, favourite occupation—licking up the bees. These batrachians are of great use in a garden, watching under a broad leaf or stone for any unwary insect that may happen to pass by; and so until I see special ones watching my bee-hives I let them rest in peace. One fat gentleman has become quite tame, and will scarcely move without being poked along, his favourite spot being under the door-step of my office. Sometimes he will venture to invade its precincts, but although there may be several bees crawling near he has not in my presence tasted one.—W. B. WEBSTER, *Binfield, Berks.*

FOUL BROOD—DEAD BROOD.

[1203.] Again and again this subject crops up, and one hears of whole districts plagued with the dreaded malady. Dreaded, I say, because it is now and ever will be a dark cloud hanging over our industry, when we consider what a number of bee-keepers there are who cannot, or do not care to take the trouble to put a stop to it.

Was not Mr. Cheshire's remedy to drive the scourge from all apiaries? and did we not hail his discoveries with rejoicing? Yet why is it so few have been able to cure by the phenol treatment, and others report that it is of no use? The present state of things shows that either the treatment is not carried out as Mr. Cheshire has advised, or else that he himself overlooked some factor which gave him an advantage; while his followers have been unable to grasp the entire subject in consequence of this one point not being brought before their notice. The fact is, my esteemed friend does appear to have overlooked a matter of the greatest importance which gave him a decided advantage over those who attempt to follow him.

It will be remembered that Mr. Cheshire had a very badly diseased hive provided for experiment, and it is in just such a state that many allow their hives to get before they become aware of the trouble. But note this: there were *very few bees and no queen*. And what did Mr. Cheshire do? *He gave them a young healthy queen and two frames of clean brood.* Why, reader, here was health to start with, and then by feeding constantly with medicated syrup, the operator would have it all his own way.

The healthy bees would have little trouble in removing the disinfected foul brood, as I am aware from the fact that under certain conditions the original inhabitants will clear out the filth without it being disinfected. During my own experience some ten or twelve years since, I found that a populous colony would throw out every vestige of diseased brood if the queen were removed. I have also found since, where any bees happened to be bought having the disease, that by removing the queen and inserting a cell from clean stock, on the point of hatching, every particle of the putrid matter has been removed by the time the young queen was ready to breed; the disease again appearing, but with less virulence, until medicine was given.

It will be readily seen, therefore, that where a bad case will not give way all the time the original queen is allowed to continue, a change to a young and vigorous mother will impart energy and determination to the workers, and then Cheshire's remedy will *never* fail.

Where the bees are so reduced as to be unfit for brood-rearing, of course they are not worth the addition of a new queen and more bees or brood, but should be immediately smothered, and the combs burned or reduced to wax. On the other hand, it will probably be found that when a stock is not very badly infected, the feeding of phenolated syrup, or its injection into the cells when the bees will not take it, will be found effectual without removing the queen. Another point which appears to have escaped notice is that all sealed honey must be uncapped and likewise disinfected, or the disease is likely to reappear from time to time. Where there is much sealed honey, uncap a portion only at a time, and if possible do not contaminate the extractor.

What is done should be done thoroughly, and experiments left to be carried out by those who can afford the time, and have nothing to fear from risk of infection.

Mr. Ward of Highgate, when visiting my apiary, stated that he failed to cure with phenol until the original queens were removed from his infected hives, and others from clean stock inserted. Notwithstanding, therefore, that Mr. Cheshire considered it a great disadvantage to have received his diseased hive without a queen, it was the one thing that ensured success, in that he gave a healthy queen as well as clean brood.

It would appear, therefore, that when a queen is badly diseased, the phenol treatment does not renovate her impaired constitution. The workers probably are cured by taking the medicated food: but just here is the point: Does the queen, or does she not, receive the phenol in the food prepared for her by the workers? Perhaps Mr. Cheshire will pursue his investigations farther, and benefit us all by giving some definite information upon this point.

That phenol is a cure for foul brood is certain, that it gives health to the workers appears equally true, and that in future it will prove effectual in *every* case, I feel convinced, if the queen is superseded when the disease does not at first give way.

DEAD BROOD.

That foul brood is often confused with simple dead brood I am well aware. The latter I have observed occasionally, and have never allowed it in any way to interfere with necessary manipulations, such as uniting, queen-raising, &c., as I have no fear of communicating disease. At present I am unaware of any cause for this, unless it be weakness of the queen, as by inserting a fresh one, all is cleared out, while no more is found, and no medicine is necessary.

HOW TO DISTINGUISH BETWEEN THE TWO.

In some respects the two are similar, much of the larvæ turning rotten, and of a dark colour, while the bees seem unable to remove such as is in that state until the weak queen is taken away. Nevertheless, some of the matter being placed under the microscope, Mr. Cheshire was unable to find the slightest trace of disease.

But that every bee-keeper may decide for himself without the aid of a microscope which is the genuine foul

brood and which not, I will show how I have always been able to detect the difference. With simple dead brood, while some may appear like the foul disease, much of the older brood *dries up to a white cinder*, in many cases retaining its original form, which I have never found to occur when genuine foul brood is present. Chilled brood can be distinguished from the more serious malady in like manner.—S. SIMMINS.

THOUGHTS ON PASSING TOPICS.

[1204.] *Wasps.*—You said you would like to hear from different parts as to the scarcity, or otherwise, of *wasps*. I write to tell you that my prophecy, published in the *Journal*, has been fully verified here, for they have appeared in thousands. My honey-shed swarms with them, although bees do not seem able to force an entry. I have just heard that a person who gets his livelihood by catching eels in the river has taken no less than 150 *wasps' nests within the last few days*. In dry weather when worms are scarce he uses the larvæ of the wasps to bait his wicker baskets. So much for the scarcity of queen-wasps in the spring.

Extracting from Brood Combs.—I expected this barbarous method had been given up long ago, but I see it still advocated in the *Journal*. Your readers should bear in mind that the 'liquid' extracted from brood combs is *not* honey—it is a mixture of honey and water, and perhaps a little pollen, and is just the sort of substance to ferment and waste good honey; besides when it is remembered where the water is procured—*i.e.*, from old manure-heaps, stagnant ponds, by the sides of sewers, &c.—it is not pleasant to think of adding such a mixture to good ripe sealed honey. Again, the practice is always fraught with danger to the brood if to nothing else, and those who have not plenty of honey without extracting from brood combs should give up keeping bees or adopt a better system of management.

Inverting Supers, &c.—Where are the advocates of inverting supers? Come, 'Amateur Expert,' please let us have your experiences. If the system has not answered in such a grand season as this it most assuredly never will answer. Where, too, are the supporters of the Heddon hive? Are they, too, going to keep silent after such a splendid summer in which to make trial?—F. BOYES, *Beverley, 16th August.*

BACILLUS MINOR.

[1205.] I am somewhat in a difficulty, and should much like the aid of your experience in a case of diseased brood. I had a nearly pure Ligurian swarm from a neighbour on 27th June. It was hived as usual in a bar-frame hive, and on 16th July I determined to raise a couple of young queens from the brood by exchange of frames. I did not notice anything wrong then, but might easily have passed it, as I suspected nothing. On about 30th July when dividing the artificial swarm most of the brood had hatched, and I noticed a good many cells, say five per cent, had greyish grubs, dead and about a quarter the normal size. I am not sure whether the cells had been capped or not, but fancy they had. There was no bad smell, and the bees seemed in no hurry to clear them out. The two young queens hatched out, and were flying on 5th August. On the 9th August I took away the frames coming originally from the swarm. The dead grubs were not all gone. They had turned black and had no bad smell.

Now, it is about these two young queens (on six and three frames respectively) that I want your advice. I examined the old swarm on 1st August, and finding the brood similarly diseased I cut out a piece and sent it on to Mr. Cheshire, but have heard nothing yet. On the 8th I availed myself of chance assistance and destroyed the old swarm and brood, brimstoned it, and buried it, in fact. It seemed a pity. What would you have done? The thing that decided me was Mr. 'Useful Hints' saying there was no cure for *Bacillus minor*, which it seemed to resemble.

Thus I have destroyed all trace of the swarm except the two young queens and the few Ligurians that hatched out of the two brood frames.

Now, the question is whether, supposing the first brood from the young queens is healthy, would it be liable at a later date to become diseased? Apologising for troubling you at this length.—BRIMSTONER, *Broadstairs, 15th August.*

[We certainly think the dead larvæ had not been 'sealed over,' since the death of these at two or three days old is one particular symptom of the disease, but there is a total absence of putrid pupæ under pierced caps, as in *Bacillus major alvei*. We advise you to notice carefully whether the larvæ from the two young queens show any sign of the disease before deciding upon a future course. We certainly have been unsuccessful in applying remedies, except in one instance, where we have effected a cure by feeding upon phenolised syrup, spraying the brood-combs with the same, and in a day or two afterwards blowing the dust of finely pulverised coffee over them. This colony, although much reduced in numbers, continued to produce healthy brood afterwards, and there has been no recurrence of the disease.

As a precautionary measure insert a lump of camphor in each hive to prevent the spreading of the disease, if it should appear, by robbing. Robbers will not enter a hive where a strong scent of camphor pervades the interior, and the Germans assert that the spores of Bacillus cannot exist in a camphorated atmosphere. We hope Mr. Cheshire will soon be able to report on the disease.—ED.]

HONEY BY HUNDREDWEIGHTS IN LINCOLNSHIRE.

[1206.] Your correspondent, 'A Member of the Worcestershire Bee-keepers' Association,' in last week's 'Echoes,' asks a very reasonable question of us here, and I echo him, but first, by my hearty congratulations on his success this year of having obtained from his six stocks one and a half hundredweight of honey, presuming he has left them ample store (say another hundredweight) for the coming winter. Very good, Worcestershire, and, may I say, keep to your old English bees. I wish I could give a more complete answer from Lincolnshire to 'W.'s' question, but I may state it is no uncommon occurrence with us to have a surplus of half a hundredweight per stock, and this where ten to twenty stocks are kept, well managed. Here I would repeat the oft-repeated advice in the *Journal*, that to get good results *stocks must be large* at the time of honey gathering. I have before me as I write this a statement that Mr. Gillfin, of Grantham, has just taken one hundredweight of honey from *a single stock*, and has left them sufficient store for winter. I think his apiary consists of two stocks. I myself extracted, early in July, one and a half hundredweight from four stocks, and hope in a few days to take another half hundredweight, and still leave ample store. Mr. Blankey, of Denton, wrote me, July 6th, that he had taken from his best stock 106 lbs., and hoped to get 50 lbs. more by end of month. His other five stocks were doing nearly as well. At our Spalding Show, Mr. Hufton and Mr. Pocklington, of Cowbit, jointly staged about eight hundredweight; their apiary consists (speaking from memory) of twenty-six stocks. Mr. Truss, of Bainton Heath, staged over five hundredweight; his apiary, in June, numbered twenty stocks, seven of which were very indifferent. Mr. Thorpe, of Swineshead, staged a little under five hundredweight, I don't know the extent of his apiary this year, but it's

very large, I believe. I would remark that, in the case of the last four named gentlemen, these weights by no means represent the full, and may be taken as only showing the weight of honey taken from a portion of their stocks for our Show. I hope to be able at the close of the honey harvest to obtain more information from others of our large apiarians as to their average yield (Mrs. Brown, of Whaplode, to wit, with her thirty stocks), when I will communicate further. Lincolnshire is, doubtless, a favoured county for producing honey, and that of a very superior quality; hence we have so large a number of bee-keepers, with such extensive apiaries, and yet increasing, and I hope will continue.—R. R. Godfrey, *August 13th.*

A WORD FOR WASPS.

[1207.] I am sorry to see the constant reference to wasp-destroying in the *Bee Journal*. If wasps interfered with bees, there might be some excuse, but as they do not, but are rather an advantage than otherwise, I do see on what grounds the 'humane' bee-keeper can defend wasp-killing. Wasps prey chiefly on insects, many of which are harmful to bees. I have seen wasps, for instance, carrying off the larvæ of moths from the neighbourhood of hives. I have never seen or heard of wasps doing any damage whatever to hives. People hate wasps because, if one comes near them, they are frightened, and spit or strike, and very properly get stung. After this they go howling to the *Bee Journal*, and accuse an insect, which is at least as valuable as bees are, of all manner of crimes. Of course, if a skep-owner chooses to leave a hive full of honey, but empty of bees, out till September or October, there may be robbing, but who ever heard of wasps destroying a strong lot in fifteen minutes, as is quite possible with robber bees?

I should like to ask 'Perseverando' if he can manage without a veil? I have not found stings about the eye cease to swell, and the consequent annoyance is great. Bees will often fly at your face when you do not get a sting in the hand.—W. M.

BEST TIME FOR MANIPULATIONS.

[1208.] In your article last week on 'Vicious Bees,' you say, 'Have we not recommended in the columns of this *Journal ad nauseam* to manipulate *during the honey season only*, on fine days, and between the hours of ten and three?' It is true that this advice has frequently been given, and it may be that when hives are kept *in shade* these hours are the best, though I must say that in hot weather I should not have thought they would be, and hot weather is common during the honey season. But probably many bee-keepers like myself have no shady situation suitable for their hives, and do not care to go to the trouble and expense of putting an awning over them. Now, my experience is that it is far better to manipulate hives in the evening than with the blaze of a June or July sun upon them. I should be very glad if other bee-keepers would kindly state if their experience coincides with mine.—Henry Chenevix, *Blackrock, Dublin, August 22nd.*

GLAMORGANSHIRE AGRICULTURAL SHOW.

[1209.] Your correspondent in the reports of the above show regrets that the judging did not give general satisfaction, which, I think, is too much to expect, as it is impossible for every exhibitor to take the first prize; and we still have people who, no matter what quality honey they happen to possess, think that because it is theirs it must be the best honey in the show.

My reasons for awarding the prize as I did, were that the *two* samples (six bottles of each) were equal in colour and far superior in flavour to the second prize honey.

Your correspondent named a committee to 'discuss this matter and establish a judging standard.' I had the privilege of meeting one of those gentlemen named at a recent show, where Mr. E. J. Gibbins' honey was staged for exhibition and passed unnoticed by the judge, and in conversation about the report in the *Journal* I said, 'There is the honey on the stage now:' his reply was, 'If there were five prizes for extracted honey here to-day that sample would not have taken even the fifth.' After that I leave your readers to judge me right or wrong.

There is another matter I wish to refer to with your permission. 'Welsh Novice' was kind enough to send, in the shape of 'another complaint,' a graphic description of misdoings in the bee-tent, taking care to colour it to suit himself. The skep with broken combs had been repeatedly driven: it was a two-day show, and the time referred to was the afternoon of the second day, the skep was rotten, and the combs completely broke away from it, the other skep, which was a good one and contained a fair quantity of bees when brought to the show and had been successfully driven on the previous day, was queenless. I found the dead queen and a number of dead bees in front of the hive in the morning. There had been a number of bees from the neighbourhood the previous evening robbing the skeps, and caused much fighting till the occupants of the skep had dwindled down to about one-third. As soon as I saw the state of the skep in the morning I concluded it would be next to useless to attempt driving it. Most of this had been explained to 'Welsh Novice,' but it did not suit his purpose to state the facts. I could not get other bees to drive, so had to do the best I could under the circumstances. I feel very much obliged to 'Welsh Novice' for his kind 'endeavour to show the lecturer wherein he erred,' but it does seem to me a roundabout way of showing it; if he had been more anxious to do me good than harm he had ample opportunity in the show grounds.—W. Gay, 4 *Flora Street, Cathays, Cardiff.*

[We are obliged to our correspondent for the previous statement, and sympathise with him in his difficulty of doing his duty under the circumstances mentioned. As both parties have had an opportunity of giving their version of the matter, we trust the controversy will now cease. We have received several other letters on the above subject.—Ed.]

MONKEYING WITH BEES—SWARMING.

[1210.] The ubiquitous *Star* reporter was strolling along a country road last Wednesday. He sat down on a mossy stone, first spreading his handkerchief carefully over it, drank in the ethereal beauty of the scene, inhaled the breeze laden with incense stolen from closing blossoms, and listened to nature's harmonies rising all around. A frog, with a grunt of disgust, plunged into the brook, and the reporter smote himself. 'Hang the mosquitoes!' he said, and, rising, had walked onward a few paces, when he was startled by an uncouth figure sitting on the fence of a farm-house, which was dimly visible through the trees in the gathering dusk.

The figure was sitting with his elbows on his knees, and its face in its hands, which were incased in large fur gloves. Stocking legs covered the arm from wrist to elbow, while a black veil hung over the dilapidated hat, after the coy fashion of Castilian dames. As the reporter drew near, it sat erect and shyly raised its veil. Then, in a voice which extreme dejection seemed to have robbed of surprise, and which seemed familiar somehow, it said, 'Good evening, Mr. Blank.'

Looking closer the reporter recognised with astonish-

ment the lineaments of one whom in former days he had known as a policeman in New York,—it was solely in the way of business, that is, newspaper business, that the reporter had made the acquaintance of the guardian of the peace!

'Why, McFinney, how do you do? What's the matter? Small-pox?' exclaimed the reporter, as he saw the red swellings covering Mr. McFinney's face, and the hand that had been ungloved to clasp his own.

'Bees,' said McFinney, laconically.

'Ah! So you are keeping bees? Very intelligent, interesting little creatures, I have heard.'

'Young man,' said the veiled ex-policeman, earnestly, 'my advice to those about to monkey with bees is—Don't. I've been at 'em for two days now, and I find 'em something too intelligent; they can find a hole in a veil so quick it makes you dizzy. And interesting! They're like a detective story; when they hump up and get a focus on you, you want to finish 'em.'

Mr. McFinney smiled feebly at his humorous conceit, and, laying his hand on the reporter's arm, continued confidentially:—

'You know all the books say bee-keeping is such a nice, clean, pleasant business. So my wife thought she'd like to try it. She said she wanted some profit off the farm, and bees wouldn't make any trouble, but would just go to work and make honey and money for us, and we wouldn't have to hoe 'em, nor milk 'em, nor weed 'em, nor churn 'em, nor nothing, but just let them set in the sun and work. One of the neighbours wanted to sell some, and we bought a dozen swarms and set 'em over there.' (Mr. McFinney indicated the place with his thumb.) 'A little book came with 'em that told how to work 'em.

'Well, yesterday my wife thought they'd been making honey for home consumption long enough, and said I must put in some honey-boxes. I went to my son Melville—he was making a fish-pole—and told him to put 'em in; he said he was too busy to fool with bees, so I had to do it. I am afraid of bees and snakes. The book says "to proceed boldly." I proceeded boldly, and took off a cover, but the bees came out,—and I went away. The book said "if one were timid to wear veil and gloves,"—so I put on this rig; but it makes a man want to dodge when he sees a dozen just outside making for his eyes. The book said "to blow a little smoke into the hive to quiet the bees:" but the very first time I tried that the bees got as mad as the —— as mad,' concluded Mr. McFinney, mildly.

'They went for me on all sides. Luckily, I remembered that the book said, "If persistently assailed, retreat to the shade;" and I retreated to the shade. But I got a few boxes in. By-and-by my wife came out, and said the way to manage bees was not to be afraid of them. Some bees came out and argued with her, and she went back for a veil. We tried a few more, and slapped them in boxes in a way that made the interesting and intelligent creatures swear like blue blazes, till pretty soon a colony swarmed out, and my wife said, "I must be getting back to my work." I thought I would, too, for quite a few had taken up their quarters in my ear. My wife bragged that she put the boxes in, any way. This morning I went out and found the cover on cornerwise, and the bees just red-hot and boiling over because the boxes were in bottom side up, and one of the glasses was stove in. I told my wife that taking care of bees was nice girl's work, and we'd leave it to Jenny when she got home from school.'

Mr. McFinney paused.

'Have they swarmed any yet?' the reporter asked, sympathetically.

An ominous light gleamed in Mr. McFinney's eye. He had evidently been touched in a tender point, but he answered gently:—'Yes, they swarmed to-day. Yes, I think they swarmed this morning. I was hilling the corn when my wife blew the horn for me, and I went down to the house. It was about nine o'clock. My wife said the bees were swarming, and she had a hive, and a sheet, and a brush, and some sweetened water ready. Way up in the tip-top of an apple-tree there were a lot of bees making an awful circus about a big black bunch that hung from a limb, and when I looked at it I saw it was one crawling mass of bees." My wife said, "Go up a ladder and knock them into a basket, and let it down." So when they had all settled I climbed up the ladder, but I thought it might soothe them to sprinkle some of the sweetened water on them; and when I came down I found that the puppy had drank it and tipped over the hive, and chewed up the sheet, and hid the basket. Well, we got 'em all ready again, and then I went up and sprinkled the bees, and came down and got the basket and a long-handled egg-beater.'

'What?' said the reporter.

'It was a patent thing that we couldn't ever make work, and Mrs. McFinney thought I could poke them off the branch with it. I couldn't get near enough on the ladder, so I climbed up in the tree and held the basket under the swarm, and scraped them into the basket. I don't believe the water had soothed them much; they hissed just like snakes when they fell into the basket, and my wife made me nervous; she kept telling me I was smashing them against the limb. Then I began to let the basket down, but it turned over in the air, and they all came out and flew most every way, but chiefly my way. They seemed to think it was all my fault. One "gentle Italian worker" got under my veil and shut up my eye.'

The reporter had noticed the peculiar expression given to Mr. McFinney's face by the mishap.

'Pretty soon,' he went on, 'they all went back to the same place; and just exactly the same thing happened over again; only this time the whole swarm went for me, and I tumbled out of the tree. I hit the hive as I came down, and hurt my shoulder some, and the sweetened water got all over my hair. My wife said she didn't see what was the idea in tipping the basket over every time. They flew into another tree this time, and we set up the hive, and I got up in the tree and sawed off the limb. It was a big limb, up in the top again, and my wife was to steady it with a pitchfork as it fell. Well, she missed it, and the fork scraped off every blamed bee. They doubled up and turned all colours, they were so mad: but, finally, they flew off again, and we were pretty tired and had our dinner.

'After dinner I went out again and found then on a lot of little twigs. I picked them off and laid them in front of the hive, and kind of brushed 'em along toward it. After awhile they all went in, and then after awhile they all came out. They crawled all over the hive, and Mr. Jordan, the man I bought them of, came up and looked at 'em with me. He said he didn't see what they were doing on the outside of the hive. They stayed there so long I got kind of tired of seeing them crawl over each other and make faces at me, and I said, "I guess I'll brush 'em off into the sheet." Mr. Jordan put on his hat and said, "I guess I won't stay, then." So I brushed 'em into a sheet, and they all flew up and lighted on a fence over our swamp. I jammed my hat on, and I said to myself, "Thomas McFinney, don't let it be said that you couldn't collar a swarm of bees;" and Melville and me went down there. We spread the sheet over the hummocks in the bog and set the hive on it. Melville had on his gum boots, so he waded in and dummed 'em into the sheet. About a quart fell into the water and drowned. They sissed when they touched the water, as though they were red-hot. But the rest were so tired that pretty soon they crawled into the hive, and we've put it in place. I hope they won't come out again to-morrow,' said Mr. McFinney, not very hopefully. 'I told my wife that it needs a younger man than me to

gallop and climb and swim after her bees, and a more active.' Mr. McFinney felt of his shoulder tenderly, and, taking off his hat and veil, passed his fingers through his stieky hair.—*New York Sun, July 27th.*

Echoes from the Hives.

Auckland House, Brondesbury, N.W., August 22.—This season in my district has been worse than last year. At first it began well with the hawthorns, &c., but the white clover was a failure and the limes almost entirely so. I have taken about half what I did last year and my neighbours have taken nothing as yet. I have an equally bad report from Mill Hill, Highgate, and Harrow Weald.—T. F. L.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

J. S. C.—We can recommend *Bee-Pasturage*, by Mr. Henry Dobbie, Thickthorn, near Norwich, which deals with the propagation and cultivation of honey and pollen producing trees, shrubs, and plants.

R. E. C.—*New Zealand Bee-keeping.*—We are not aware that any standard frame has yet been adopted in New Zealand. The British Standard and the Langstroth frames (17⅜ × 9⅛) are those chiefly in use there. You will find that the New Zealand bee-keepers are in no way behind those in this country. The annual produce of the honey crop in that colony is from 300 to 400 tons, fully half of which is produced in Auckland Province. The success of apiculture in New Zealand is in a great measure due to the zeal and energy of Mr. J. C. Firth, of Manamata. He has secured the services of Mr. Hopkins, the well-known apiarist, and author of the well-compiled work on apiculture in New Zealand, and has established several apiaries in his neighbourhood, fitted with all the latest improvements for manufacturing bee-appliances and purifying wax. The hives in Manamata—about 200 in number—average a product of 100 lbs. per hive. The honey produced is of a very high quality. Its price last season ruled rather low: the best comb honey was 6*d.* per pound in 1-lb. sections; extracted honey, in bulk and tins, 2½*d.* to 4½*d.*; strained honey, 2*d.* per pound (wholesale). 2.—*Taking English Combs.*—We should recommend you to dispose of your combs before your departure, and not to encumber yourself with them.

Mrs. Graham.—*Bees in Box-hive.*—As you are desirous of starting the bar-frame system it would be as well to transfer the combs from the box to frames. This is not a difficult job. Having quieted the bees by smoking them the box can be broken open, the combs cut out and tied in to the frames with tapes, the frames placed in the hive and the bees brushed on to them. If not disposed to treat them thus now they may be left until the spring, when a swarm may be hived in a bar-frame hive and the combs transferred afterwards.

F. G.—1. *Earwigs.*—These do not eat honey or do any harm in a hive, they simply go there for warmth and dryness. 2. *Fermented Syrup.*—This is very bad for bees. If stored now and used for food in winter it would certainly cause dysentery. Add a little solution of salicylic acid to the syrup. 3. *Roofs.*—You should have pitched the outsides not the insides. If you now pitch the outsides no harm will be done by the pitch inside.

Bee-keeper.—The sample of sugar forwarded will answer your purpose for making syrup.

E. W.—'*Honey-Dew,*' *alias* '*Aphidean Excreta.*'—1. The American view is that as winter food it most certainly produces dysentery. We should hesitate to winter bees upon it. 2. We prefer granulated sugar syrup, salicylised, for winter stores—supplied in early autumn, of course—to this nauseous compound. 3. You may safely feed bees upon it at spring. When bees are breeding fast, and working actively in the fields, it loses its deleterious effect.

Show Announcements.

August 26.—Craven Agricultural Society's Show at Skipton. Secretary, Richard Wilson, Skipton. A 2889

August 31–Sept. 3.—Royal Manchester and Liverpool Agricultural Show at Manchester. W. Lees McClure, Hon. Secretary, The Lathoms, Prescot, Lancashire.

Business Directory.

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Burtt, E. J., Stroud Road, Gloucester.
Edey & Son, St. Neots.
Howard, J. H., Holme, Peterborough.
Hutchings, A. F., St. Mary Cray, Kent.
Meadham, M., Huntington, Hereford.
Meadows, W. P., Syston, Leicester.
Neighbour & Sons, 149 Regent St. & 127 High Holborn.
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CONDEMNED BEES, first week in September, 1*s.* 6*d.* per lb., packages free. F. LYON, 94 Harleyford Road, S.E.

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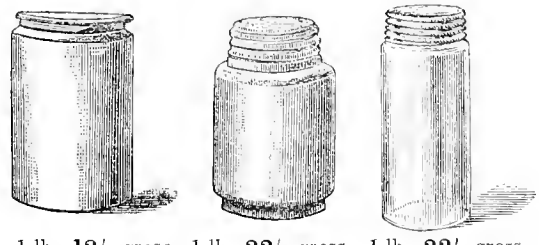

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½ lb. ... 7/6
1 lb. ... 10/6
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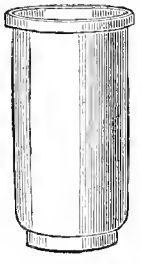
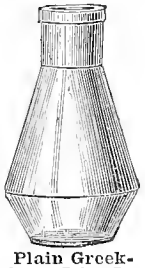


Upright
Jelly Jar.
1 lb. 10/6



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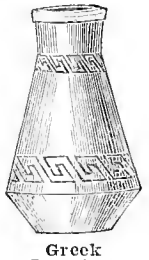
Corks for above, 2/- per gross.



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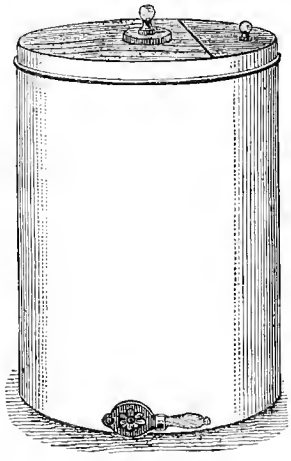

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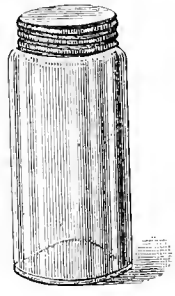

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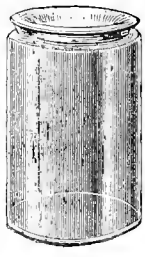

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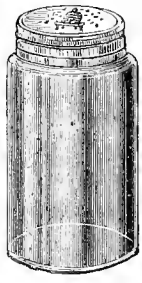

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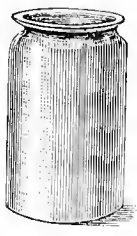

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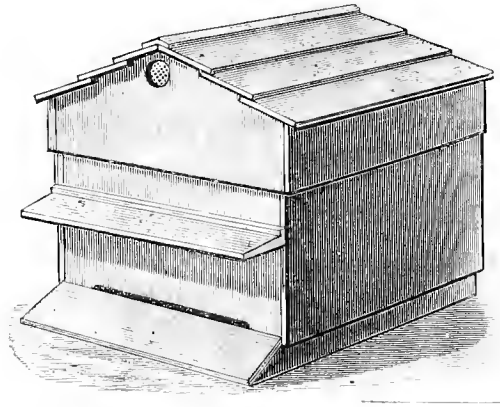

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THE
BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, Cambridge Circus, W.C.

[No. 271. VOL. XV.] SEPTEMBER 1, 1887. [PUBLISHED WEEKLY.]

Editorial, Notices, &c.

JUBILEE DESIGNS.

In our number for July 7, we mentioned the specimen of honey-comb forming the word 'Jubilee,' the work of the bees of Mr. Alsford, of Blandford, which was so perfect that it drew forth high commendation from all who saw it at the time. This has been presented by Mr. Alsford to Her Majesty the Queen at Osborne, through the influence of the mayor (Mr. J. W. Luff), who secured a personal interview for the owner with Sir Henry Ponsonby. On Thursday last Mr. Alsford received the following communication :—

'*Osborne, August 23rd*, 1887.

'Sir Henry Ponsonby is commanded by the Queen to thank Mr. Alsford for the Jubilee Honeycomb which he has presented to Her Majesty.'

LORD SUDELEY'S PLANTATIONS.

It is my good fortune to be located for a while in a village nestling at the foot of the Cotswolds, not far from the famous Vale of Evesham. Some little distance beyond a field of forty odd acres facing the house in which I am staying trees rise in rich profusion; amid these the spire of a church and a mansion of more than ordinary size and beauty arrest the attention, while a mile or two farther the Cotswolds form a semicircle, cutting us off apparently on one side from all communication with the outer world. The spire that forms so striking an object in the landscape is the spire of Toddington Church; the mansion is the residence of Lord Sudeley; the trees form a portion of his famous plantations. Among these I was kindly permitted to wander a few days since, nor did I omit to pay a visit to the apiary of 200 hives under the charge of that genial and canny Scot, Mr. John White.

I wish some of those who despair of the future of agriculture in England would visit these plantations. Here on heavy clay and poor soil, which some time since could scarcely be let at 30*s.* per acre, may now be seen fruit trees (especially plums and apples) intermingled with currants (black and red), strawberries, gooseberries, and raspberries. Such raspberry canes I never saw before, and I was glad to learn from the foreman who accompanied me that the crops, especially raspberries, had been splendid and that no difficulty had been experienced in selling the produce at remunerative prices.

The jam-factory in the centre of the plantations takes a portion, but only a portion, and by no means the whole, of the produce. Every year fresh plantations are made, and more than 500 acres have now been taken up. The rateable value of the land has of course been raised, in some parts to 4*l.* per acre, and a very large number of men and women are employed throughout the year in cultivating the ground and in picking the fruit, as well as in preparing and packing the jam. I could not but regret that Lord Sudeley's useful example has not been followed more elsewhere. Even at Evesham, the centre of the plum and of the fruit district, no factory has been started, though, of course, you are told there has been 'a talk about it.' As a consequence, when there is a glut of fruit, it becomes unsaleable and so is wasted. Yet a factory does not require much capital or skill, and one would have supposed that self-interest would have induced the parties concerned to start something of the kind.

You, however, Mr. Editor, will remark that I have forgotten John White, and have left him with the bees! Well, after wandering amid a 'plot' of 250 acres, I was glad to greet the veteran and to find him at work among his friends. He had heard of my intended visit, and had specially reserved a swarm for me to hive! A hunger swarm had visited the apiary and, after various vagaries, had settled on a hedge adjoining his hives. So, thanks to the kindness of Mr. White, I had the pleasure of hiving a swarm in Lord Sudeley's plantations. It was pleasant news to learn that he, too, had had a very good harvest, the best he had ever known. We discussed different points. The carbolic sheet he has not tried; I have tried it personally for some months and have scarcely used a smoker. But the smoker is not superseded. My household complain that some of the honey from my hives is distinctly tainted with carbolic flavour. I have, too, recently found in the examination of candidates for the third-class certificates that some of them fail to subdue their bees before driving, because they have ceased to use the smoker. The hands of one candidate were recently pierced with stings in a manner which I never saw equalled, partly because he had become quite unaccustomed to the use of the smoker. Mr. White uses one with a larger furnace than is commonly employed. This smoker (as many are aware) does not need the attention which the smaller size requires, and will continue alight for a long time. He is not an advocate for dry-sugar feeding. He prefers to make his syrup as much like honey as he can. For my own part, when I feed on syrup, I always put salicylic solution with it, and was never troubled with foul brood to any extent. For the last year I have tried the dry-sugar system, and must admit that it saves a vast amount of trouble, nor does it induce 'robbing' as syrup sometimes does. But the fact that it is possible to mix salicylic solution

in the one but scarcely in the other seems a point in favour of syrup feeding. I am, too, inclined to think that it stimulates breeding more than dry-sugar feeding. Perhaps some of your correspondents will discuss this and the other points I may raise. I was sorry, but not surprised, to learn that Mr. White is troubled with foul brood. It appears to give him considerable trouble, but not much anxiety. I had suggested isolation or the 'stamping out' of disease by the destruction of the hives affected with this pest, but he declines to destroy his bees in this fashion. He has used phenol extensively, and believes in it as a cure. Instead of a petty 'spray-diffuser,' he prefers to use a small can with a narrow spout, and to pour the phenoled syrup over around the infected combs. He admits that the time consumed in repeating this process from day to day until something like a cure is effected is considerable; but he thinks that patience and perseverance have their reward in this as in other things. He showed me a hive that had been 'a bad case,' as he said, where this method had been tried. The bees were very fairly numerous, and there were very few infected cells; the brood, however, was as scarce as were the showers in the month of July. While looking over the frames the queen appeared, and at his request I caught her, as she was evidently unfit for future work, being small in size and her wings imperfect. To bring a fresh queen and to place her in a pipe-cover cage was the work of a few minutes, for John White, like a wise man, has all that he requires close at hand, and several surplus queens were ready for use in the shed attached to the apiary. While we were carefully examining this hive, an unpleasant sensation behind led me to suppose that some bee had found a weak point and had assailed it! Turning round I discovered that my enemy was—a Scotch thistle! John White could not forget his native land, and so had allowed this invader to live and thrive amid his hives. Yet the sunshine on his face shows that he is no 'exile from Erin,' no Highlander bewailing his fate in sad solitude on the shore of some Western lake, for is not his 'gude' wife with him to assist him in extracting the liquid sweets day after day from the loaded combs of his two hundred hives? While we were enjoying the joke of the Scotch thistle, he informed me that some years since, when he met Mr. Cowan at the Grantham Show, Mr. Cowan had invited him to cross the border once more, and return with him to the land of the heather. Happily, for the success of Lord Sudeley's apiary, John White declined. He assured me that the sections were going off as fast as he could wish, and that but little of last year's harvest remained unsold. The honey was obtained chiefly from the raspberries, and the returns from these (as I was informed by my guide through the plantations) had been very large. Indeed, the pickers were still at work upon them the day I was there (August 22nd). Thus the bees had done good to the raspberries, and the raspberries by their returns in honey and in fruit had done substantial service, let us hope, to Lord Sudeley as well as to our friend John White.—E. Bartrum, *Berkhamsted, Herts.*

AMONGST THE CO-OPERATORS.

On Tuesday the 23rd, I was amongst the co-operators. Bee-keepers are enthusiasts, but in the matter of enthusiasm the co-operators out-Herod Herod. But their enthusiasm is intensely practical, they have not only organized stores where their members can purchase the necessaries of life at wholesale prices, but they also manufacture largely on co-operative principles as well. The display of wearing apparel, shoes, articles of common use in the household, hardware, and coals, was very good indeed. Added to this there was a good show of flowers, fruit, and vegetables in the Conservatory of the Royal Horticultural Society; and considering the number and value of the prizes, and that exhibitors must be members of the Co-operative Society, there was a very creditable display of honey.

What memories the great Conservatory called up! Of honey shows unparalleled; of crushing, good-tempered holiday throngs; of keen, but good-natured rivalry, and of bronze medals!

'Still o'er these scenes my memory waits
And fondly broods with miser care.'

Outside in the gardens desolation reigned supreme; there was a band—the boys from the Duke of York's School—the band kiosks are amongst the things of the past, but the little fellows played splendidly, especially considering there were few to listen and none to applaud. The large masts from which the electric lamps flashed so brilliantly last year stood like grim sentinels keeping guard over a scene of spoliation and death, but 'their lamps were gone out.'

The British Honey Company, and Messrs. Abbott and Neighbour, each had a stall in a most out-of-the-way place. The appliances as collections were sufficient for a much larger exhibition, and were not so large as frequently, to give novices the idea that bee-keeping requires a lot of money to start. Mr. A. Neighbour had a splendid observatory hive of Italians on show, they have been in Regent Street for the past two months, but had honey unsealed that they had gathered within the past few days. The wonder is where did they get it from? There was also another wonder, but this time it was on Messrs. Abbott's stall; it was their 'Gayton' hive. Well made, of good material, a hive good enough for keeping bees in, if their owner happened to have a sack full of money and was at a loss to know what to invest it in. But I don't love broad-shouldered frames.

The honey entered for competition was staged in the Conservatory, the appliances should have been there too, as there was ample room and to spare. The lot that won the first prize was 'raised' by a good bee-keeper, he is unknown to me, but workmanship is an unfailing test of ability. It was well put up, a different kind of paper would have still improved the sections, and the run honey had not been in the bottles sufficiently long to allow the air-bubbles to rise out of it. These remarks are not intended as fault-finding, but as hints for whoever cares to profit by. The owner of the second prize lot had bottled his earlier, and I judge only lost the first on the score of bulk. Mr. Ebenezer McNally sent a nice lot, his sections were very fair, packed in Woodley's cases they looked neat, but were staged lying down; a position fatal to section honey. His heather honey in bottles (Ah, the aroma of it!) was clouded with wax, and for looks the 'get-up' of his run honey was put out of it by the prize-winners! His 'Victoria Jubilee' device in comb honey I was pleased to see, doubtless it would have been better worked had the season been different. There was another lot that took my attention, it had the notoriety of being the dirtiest lot of sections I ever saw. I cannot conceive who will buy them.

A few others as well as myself attended by invitation hoping to teach the co-operators to profit by the co-operation of *Apis mellifica*, but there was a big meeting and a startling resolution to pass that is intended to greatly affect the brotherhood of man, consequently all the enthusiasts rushed off to that. We were left to gossip together on bees and their owners, the band wasted its sweetness on the desert air of the Royal Horticultural Gardens, and I fear bee-keeping was not advanced much.

But I am told this is only a beginning, it is intended this show shall be annual. Their Secretary certainly lacks neither courtesy, energy, nor enthusiasm. Co-operators, above all people, should be bee-keepers on principle, perhaps bee-keepers on the same score should be co-operators. I am not one of the clan, but the afternoon was spent amongst them with some pleasure and profit by—Amateur Expert.

USEFUL HINTS.

Weather.—Heat and drought still prevail in our immediate neighbourhood, and the copious and refreshing showers with which other districts have been favoured have avoided ours. Still, the slight rains and heavy dews prevailing of late have revived the herbage, which is putting on a greener shade, and the second crops of red clover are affording superior pasturage for our Eastern races, which leave no petal unvisited in search of the precious nectar, while the blacks amuse themselves by 'flitting from flower to flower, and kissing all buds that are pretty and sweet.'

But the income—alas! like many other incomes—is small indeed, and the exposure of refuse comb, intermixed with pollen, and a flavour of honey, causes intense excitement in the apiary and is quickly covered by raiding and ravenous wasps, by which our hives are vigorously attacked, so much so, indeed, that the hive-entrances have all been reduced to a passage-way for one or two bees only, and now dead wasps beneath the alighting-boards are plentiful enough.

Preventing Robbing is of the utmost importance, especially in the larger apiaries, since if once it becomes established it is a matter of the greatest difficulty, if not of impossibility, to check it. The eye of the bee-master should ever be upon his apiary. Every colony—its history, strength, queen, and all else relating to it—should, without written memoranda, be at his fingers' ends—figuratively, we mean, yet without figures, and not literally, or he might become the victim of—well, we will not say how many thousand stings.

A beemaster who loves his bees will never be long absent from his apiary which will ever be his *maxima cura*, and will demand his attention at all times. True, there are many whose daily calling summons them away from Arcadian delights; but even so, the true bee-master will devote a few minutes, morning and evening, to visiting his hives, and by so doing will forestal many an evil.

Roofs and Hives.—Let all roofs and outer cases of hives be rendered water-proof before the autumnal storms are on us. No better time than the present for stopping chinks (of which plenty will be found after a long dry season) and tarring exteriors.

Feeding also must be carried on vigorously where required, and all feeders should be filled at night and securely covered.

Space beneath Frames has occupied considerable attention of late. It has always been held as a sound axiom in apiculture that 'If a greater space than one-fourth or three-eighths of an inch be allowed between the sides or bottom-bars of frames and the walls or floor of the hive that the bees will build comb in such space.' In 'Useful Hints,' vol. xv., p. 308, *B. B. J.*, we related the results of several experiments made by ourselves in this direction, *e.g.*, 'Experimentally we have allowed to several newly-hived swarms two inches beneath the frames, and have not contracted the hives. As we expected, the bees have confined themselves to the frames, building out the combs on full sheets of foundation, and adding no brace combs below.' These were first swarms, each containing about 4 lbs. of bees, and the hives twelve Association standard frames, or equivalent thereto. On p. 354, also, in reference to Lee's frames, we stated our belief that *all* combs would have been attached (built down) to the bottom-bar if one or two inches had been allowed between frames and floor-board—*i. e.*, instead of the half-inch which we always give, in preference to one-fourth or three-eighths of an inch, allowing for sagging of the frames. In many cases where three-eighths of an inch have been allowed we have found the bottom bar touching the floor-board, and firmly propolised thereto.

It has been objected that the 'Editorial note' appended to Mr. Robinson's letter on 'Vicious Bees' (1187), p. 359, sanctions a quarter-inch space, and that our advice is contradictory. Now, the 'Editorial' states that it was a mistake to raise the *hive* half an inch for ventilation (when a quarter of an inch would have been sufficient), thus giving an inch space below the frames, which in this particular case, of an *over-crowded hive*, would be certain to induce comb-building below the frames, the great error of crowding a large swarm into a small hive having previously been committed. 'Circumstances alter cases,' as our old copyslip fifty years ago taught us, and we certainly see nothing contradictory here.

We should certainly hesitate to recommend hives to be built with a space of two inches beneath the frames, but we find by experience that when that, or even greater space, is allowed, during the winter months, the bottom ventilation is more perfect, and, consequently, the interior of the hive is kept dry, healthy, and entirely free from damp or mouldiness. And this plan can be put to the test by simply inserting between hive and floor-board an 'eke' of the dimensions of the hive, and from two to four inches in depth, when placing the bees in winter quarters.

Times for Manipulation.—With regard to Mr. Chenevix's letter (1208), p. 373. There are plenty of days during the honey season, when bees are busily at work, that are by no means too hot for manipulation, and we have always found operations on such days far more pleasant and easy of performance during hours of flight than in the evening, with over-crowded hives, while every bee is at home, and at times clusters lying outside. In the former case, the bees at home are the nurse-bees, young and harmless, and the ease and despatch with which a hive can be thoroughly examined while two-thirds of its population are absent, the queen interviewed, queen-cells cut out or inserted, frames exchanged, and almost every other operation performed, contrast very favourably with the latter case, when bees of all ages are at home, and ready to do battle on the slightest provocation, even if no crushing of bees take place—and consequent emission of sting-poison, so provocative of anger to all races of bees—which few, even skilful manipulators, can avoid under such circumstances. We continue, therefore, strongly to recommend to beginners and the inexperienced manipulation during flight hours, when honey is being stored; but at other times, especially when there is danger of robbing, in the morning or evening—provided always that manipulation is *necessary*. The less of it the better, so long as colonies are strong and healthy. See 'U. H.,' present vol., p. 308.

Parallel *versus* Right-Angled Frames.—On this subject we will not enter upon the arguments for or against since it has been thoroughly ventilated in past volumes of the *Journal*. We are strong advocates of perfect ventilation of hives, at all seasons of the year, and our point is that this cannot well be attained on the 'parallel' or 'hot' system. Combination, and many other hives, have parallel frames, and are better adapted for back and side than for 'top storage,' and admit of twofold expansion—towards front and back. All our experience is in favour of 'top storage' as being also in accordance with the instinct of the bee, and we maintain that the honey stored above the brood-nest is of better quality, more free from intermixture with pollen, less liable to the deposition of eggs and brood, and more abundant in quantity, than when stored at the back or on the sides. This plan of right-angled frames and 'top storage' in modern parlance is designated the 'tiering-up system,' and is almost universally practised by other nations; and although we should be extremely sorry to ignore the views of some of our foremost English apiarists, yet we cannot shut our eyes to the fact that the 'parallel system' and side storage are utterly condemned by American apiarists, almost to a

man, and the system finds little favour in Germany and other parts of the European Continent. If parallel frames and expansive hives have any advantage over the other system, it is in this, that they are better adapted to prevent natural swarming. And yet the advocates of the latter tell us that by piling hive upon hive (*i.e.*, doubling) and super upon super, we many prevent swarming altogether. Here again there must ever be varying opinions. 'Let each man be fully persuaded in his own mind. Prove all things. Hold fast that which is good,'—the Divine utterance, as applying to holy things, may well apply here also.

Extracting.—We have just received from Mr. Meadows one of his latest improved 'Raynor Extractors,' which is doing its work admirably, throwing out honey of so great a density that our old extractor would not separate at all from the combs, and withal so portable, light, and easily taken to pieces for cleaning, or renewal of its parts, that nothing is left to be desired. We do not remember honey of so great density at any period of our experience. Except for colour, aroma, and flavour, it resembles heather honey.

Sections should be removed without delay, where neglected hitherto, and the honey extracted from those unsealed. Some of our later sections, worked on Mr. Simmins's plan, without separators and in his skeleton folding frames, are beautifully even, and, save for loop-holes at the corners, might almost compete with those worked on Mr. Lee's plan. We consider that greater advance in sections, and their crates and cases, has been made of late than in any other apicultural articles; and he who would keep pace with the times, and present his honey in the best and most tempting manner to the eyes of the purchaser, must by no means neglect these late improvements, which, to be of real use, should be obtainable in any quantity without difficulty, and at very moderate prices.

'Dead Brood.'—Speaking of Mr. Simmins reminds us of his interesting letter (1203) on 'Foul Brood and Dead Brood, published in our last issue. On one point therein stated we must, however, join issue with him, viz., his supposition that 'dead brood'—which we are inclined to place in the same category as *Bacillus minor*—may arise from '*weakness of the queen*.' This is contrary to our experience. Weakness, whether from age or otherwise, causes a paucity of eggs, and consequent dwindling of the colony, but we have never found it productive of diseased larvæ, which we are inclined to believe arises principally, if not entirely, from bacilli. We are the more inclined to this opinion because in several instances in which we have changed the queen of an infected colony, superseding her by a young and vigorous queen, the disease has been in no way checked, but has continued its usual course. We hope, however, soon to obtain more light on this important subject, convinced, as we are, that almost all the diseases to which bees are liable, are too often classed under the one head of foul brood.

ASSOCIATIONS.

MIDDLESEX BEE-KEEPERS' ASSOCIATION.

N.E. Provincial Honey Show.

A most successful exhibition of honey and bee-keeping appliances was held at Southgate on Saturday, the 20th Aug., in the conservatory and grounds of P. P. Hasluck, Esq., of the Wilderness. The amount of practical support afforded to the scheme by Mr. Hasluck from the moment of its first inception till the close of the show, fully guaranteed the success of the venture.

The Middlesex B.K.A., in their annual report for 1885, deplored the absence of members in the N.E. corner of the county. Now this district is gaining members at a pace which bids fair to place it in a position to compare favourably with the rest of the county. The unfortunate crop of bricks and mortar is, however, fast circumscribing the available honey area.

The *locale* of the Southgate Show was charming in the extreme; indeed, the wonder is that such a thorough country retreat is still to be found within such a short distance of London. The schedule of prizes offered was an excellent one for a first attempt, and the judges placed the awards as follows:—

Class I. For twelve 2-lb. sections of comb honey: no exhibits. II. For twelve 1-lb. sections of comb honey: 1, Mr. Bolton, Southgate, 20*s.*; 2, Mr. Willan, Tottenham, 10*s.* III. For 24 lbs. extracted honey in 1-lb. glass jars: 1. Mr. English, Tottenham, 20*s.*; 2, Mr. W. M. Graham, Edmonton, 10*s.*; 3, Mr. Willan, certificate. IV. For 12 lbs. extracted honey in 1-lb. glass jars: 1, Mr. Bolton, 20*s.*; 2, Mr. English, 10*s.*; 3, Mr. Hasluck, certificate. V. Straw super: no exhibit. VI. Collection of hives and bee-furniture most applicable to bee-keeping; no two articles to be alike; real utility to be taken into account in deciding: 1 and 2 divided between Messrs. Abbott and Mr. S. J. Baldwin, 15*s.* each. VII. Sample of foundation, viz., 3 lbs. thick and 3 lbs. thin (section) to be made in the presence of the judges. 1, Abbott Brothers, 20*s.*; 2, Mr. Baldwin, 10*s.* VIII. For 12 lbs. extracted honey in reputed 1-lb. glass jars (subject to the rules of the B.B.K.A., this being the class competing for the county medals of the year): 1, Mr. Fewtrell, Reading, Berks (ineligible for Medal); 2, Mr. Bolton, Southgate, Silver Medal; 3, Mr. Hasluck, Southgate, Bronze Medal.

Special Prizes for Southgate District only.

M.B.K.A. Members' Class.

Six 1-lb. sections: 1, Mr. Deakin, 15*s.*; 2, Mr. Bolton, 10*s.* Twelve 1-lb. sections: 1, Mr. Bolton, 15*s.* Six 1-lb. glasses extracted honey: 1, Mr. R. Clement, cup: 2, Mr. Bolton, 10*s.*; 3, Mr. Hasluck, 5*s.* Glass super: the only exhibit was a partly-finished one by Mr. Burrows. Largest exhibits among Southgate members of both section and extracted honey: 1, Mr. Bolton, 10*s.*

Open Class.

Six 1-lb. sections: Mr. Bolton. Six 1-lb. glasses extracted honey: 1, Mr. Bolton; 2, Mrs. Davis.

The quality of the honey was fairly good, but the colour, except in one or two instances, was very dark. Making allowance for the very peculiar season through which we have just passed, the Middlesex B.K.A. are to be heartily congratulated on the vigorous determination of this district to push the interests of the Association, although year by year the chances of obtaining a good surplus of honey must decrease as the builder advances.

The Judges, J. M. Hooker, Esq., and Mr. Expert-in-chief Baldwin for honey, and J. M. Hooker, Esq., and G. Henderson, Esq., for Classes 6 and 7, gave thorough satisfaction by their award. The bee-tent was under the experienced *ægis* of friend Baldwin, who not only performed the time-honoured driving feat, but transferred a stock from skep to frame-hive, and also introduced an Italian queen to the stock in lieu of their injured queen, much to the astonishment of some skeppists.

Five candidates attended for examination for third-class certificates. Four failed; the fifth was unable to complete his manipulations during daylight, and will, therefore, be taken again at an early date. Mr. Hasluck not only invited free entry to his grounds, but also kindly provided a band, which greatly enlivened the proceedings. Several showers of rain fell during the afternoon, preventing many from availing themselves of his kindness.

Another show is proposed to be held at the same place on Saturday, 25th July, 1888.

SHREWSBURY HORTICULTURAL SOCIETY.

The Annual Meeting of the above Society was held in the Quarry, Shrewsbury, on Wednesday and Thursday, August 17th and 18th. In conjunction with the show was held the annual honey fair, and exhibition of honey,

hives, and bee-furniture of the Shropshire Bee-keepers' Association. The honey fair was not the least in the numerous attractions of the fête. The exhibits were both numerous and delicious. About six tons of honey were brought into the exhibition, and one ton was sold on the first day. The silver medal was won by Mr. W. G. Preece, jun. (Shrewsbury), whose practical knowledge as an apiarist enables him to bring both bees and honey to the highest perfection. Mr. Wood, of Somerfield, Wellington, also occupied a prominent position among the more successful exhibitors. In Class 6, Mr. Bradley took the bronze medal with a very pleasing novelty, the bees having made with honey the initials of the exhibitor, the word 'Bee,' and the year '1887.' In Class 7, Mr. Abbott's applianees attracted considerable notice, and gained the first prize, his 'Gayton' hive also gaining first prize for hives, being closely run by Mr. W. G. Preece, Messrs. Neighbour winning third prize. In the class for novel and useful implements, Mr. Woodley (Reading) gained the first prize with an ingeniously contrived section case, while Mr. Wilcox (Shrewsbury) was second with an improved bee-skep. In Class 13 the bees shown by Mr. Abbott were exceptionally fine. The whole of the exhibits in the cottagers' classes were very good, and some difficulty was experienced in making the awards. The Rev. H. W. Wilcox, of Cockshutt, and Captain Nicholas Robinson, of Frankton Grange, Shrewsbury, acted as judges, and their decisions gave great satisfaction.

Honey.—For the best exhibit of comb honey in sections, to exceed 20 lbs.: Mr. W. G. Preece, jun., Shrewsbury, 1; Mr. John Bradley, Yockleton, 2. For the best 24-lb. section of comb honey: Edwin W. Jones, St. Martin, Chirk, 1; W. G. Preece, jun., 2. For the best exhibition of run honey, to exceed 20 lbs.: Mr. E. Wood, Springhill, Wellington, 1; Mr. J. Palmer, Wrockwardine, 2. For the best 24-lb. bottles of run honey: Mr. E. Wood, 1; Mr. J. Palmer, 2. For the best exhibition of honey in the comb, in any kind of super: Mr. A. Beale, Rea Place, Meole Brace, 1. For any novelty of honey of practical interest calculated to advance bee-keeping: Mr. J. Bradley, 1.

Appliances, Hives, &c.—For the best hive suitable for modern bee-keeping: Messrs. Abbott Bros., Southall, 1; Mr. W. G. Preece, 2; extra prize, Messrs. Neighbour & Sons, 127 High Holborn, London. For the best hive, being the *bonâ-fide* work of an amateur: Mr. W. G. Preece, jun., 1, Mr. John Palmer, 2. For the best collection of apiarian applianees: Messrs. Abbott Bros. 1; Mr. Whittingham, Haughmond View, Shrewsbury, 2. For the best section-rack: Messrs. Abbott Bros. For the best 1-lb. sample of super foundation: Messrs. Abbott Bros. For the best new and useful invention calculated to advance bee-keeping: Mr. A. D. Woodley, Reading, 1; h. c. Mr. John Wilcox, 27 Castle Foregate, Shrewsbury.

Bees.—For the best exhibition of live bees, of any pure race, with queen, to be properly secured in an observatory hive: Messrs. Abbott Bros., 1; Miss M. E. Eyton, Leaton, Wrockwardine, 2.

Cottagers' Classes.—For the best exhibition of not less than 12 lbs. of comb honey: Mrs. S. Withers, Marchamley; Mr. H. Tatton, Petton Lodge; and Mr. John Walford, Grinshill; equal. For the best exhibition of not less than 12 lbs. of run honey: Mr. H. Tatton, Petton Lodge, 1; Mr. Mark Sutton, Harmer Hill, and Mr. John Walford, Grimshill, 2. For the best exhibition of honey in any form: Mr. Mark Sutton, 1; Mr. John Badger, Belle Vue, 2. For the best hive suitable for modern bee-keeping, the work of a *bonâ-fide* cottager, not being a carpenter, joiner, or wheelwright: Mr. J. Bradley, 1.

NORTH-EAST OF IRELAND BEE-KEEPERS' ASSOCIATION.

ANNUAL SHOW.

Judging by the dimensions, quality, and comprehensiveness of the exhibition which, under the auspices of the above Association, was held on Friday, August 19, in the Y.M.C.A. Hall, Wellington Place, Belfast, bee-keeping in the North of Ireland is rapidly developing. True, as compared with England and Scotland, we are as yet only in the elements of the science of apiculture, but with such able and energetic pioneers as the Rev. H. W. Lett, Mr. Paul M'Henry, Mr. William R. Orr, and Mr. W. Lonsdale, to prepare the way, a few years will see Ulster well onward in the march of progress in this as in other respects. The show, which is the fourth held by this Society, was by far the best ever held in this country, and the attendance was good. The hall, although on the small side, was admirably adapted for the exhibition, and the exhibits were all very good. A very fine photograph of an arch of bee-hives, erected by Mr. W. R. Orr, Strabane, was much admired, and bore testimony to this gentleman's enterprise and ingenuity; while the 'Crown design' exhibited by him was universally admired, as were the designs 'Victoria' and 'Jubilee' of Messrs. M'Nally. There was every evidence that humane bee-culture is going forward in the North of Ireland, and hope the friendly visit of the Messrs. M'Nally, Robertson, Abbott, and others, will serve to stimulate our local apiarians to renewed efforts, and that we shall have some Irish exhibits well to the front in the sister countries. The display of Mr. Abbott, from Dublin, was very deservedly admired, as was that of Messrs. A. Cross, Bryce, & Co., of Belfast. All that could possibly be required was to be had at these stands. There were 104 entries staged. The show was a success. Mr. Thomas M'Henry's exhibit of 200 lbs. of 1-lb. sections was very good, and staged in very fine condition. In the run honey there were all shades of colour, and the quality of the class was pronounced by the judges to be extra good, all the exhibits being of fine quality.

Much of its success is undoubtedly due to the energy and forethought of the hon. secretary and treasurer, Messrs. Paul M'Henry and Samuel Cunningham. The judges were as follows:—Bees, hives, and appliances: Rev. H. W. Lett, M.A., Aghaderg Glebe; Mr. W. Ditty, Newtownards. Honey: Mr. A. Morris, Knockbreda Park, Belfast; Mr. A. B. Johnston, Brick Hall, Killyleagh.

The following is the prize list:—

Bees.—Class I. For the best observatory hive: 1, and special presented by Messrs. A. Cross, Bryce, & Co., Belfast, W. R. Orr; 2, William Lonsdale.

Honey.—Class II. For the best super of comb honey (not being sectional), the super to be of wood, straw, or of wood in combination with glass or straw: 1, and special prize presented by Mr. W. Lonsdale, Lurgan, Rev. J. Hunt, 50 lbs.; 2, W. Lonsdale; 3, Isaiah J. M'Cabe, 20 lbs. Very highly commended, Rev. J. Hunt, 20 lbs.—III. For the best glass super of honey: 1 (presented by Rev. James Hunt, Parkgate), John Rainey, 30 lbs.; 2, John Rainey, 18 lbs.; 3, Edward Smith.—IV. For the best twelve one-pound sections of comb honey: 1 (presented by Messrs. Malcolmson Brothers, Belfast), W. and J. D. M'Nally; 2, Rev. H. W. Lett; 3, W. and J. D. M'Nally.—V. For the best six 2-lb. sections of comb honey: 1, Thomas Moore; 2, W. and J. D. M'Nally; 3, James Lewis.—VI. For the best twelve 1-lb. or six 2-lb. glass jars of extracted or run honey: 1 (presented by Messrs. Forster, Green, and Co., Limited, Belfast), George Turner; 2, T. G. Barlow; 3, Alexander Turkington. Very highly commended, Rev. J. Hunt, W. Edmund Best, W. and J. D. M'Nally, and William Lonsdale.—VII. For the largest and best exhibit of comb honey from one bee garden: 1 (presented by Messrs. E. and W. Pim, High Street, Belfast), Thomas M'Henry, sections 200 lbs.—VIII. For the best ornamental design in comb honey: 1, W. R. Orr; 2, W. and J. D. M'Nally.

Wax.—Class IX. For the largest and best exhibit of bees-wax, being produce of exhibitor's own bees: 1, William Lonsdale; 2, W. R. Orr; 3, Rev. R. D. Knox.

Hives.—Class X. For the best frame-hive: 1, silver medal (presented by W. M'Causland, Esq.), Abbott Brothers, 'Universal Doubling Hive;' 2, Abbott Brothers, 'Combina-

tion Hive;' 3, William Lonsdale, 'Irish Jubilee Hive.' Very highly commended, W. R. Orr, 'Irish Jubilee Hive.'—XI. For the best and most complete bar-frame hive, and price not to exceed 10*s.*, unpainted: 1, William Lonsdale, 'Morgan's Cottage Hive;' 2, Abbott Brothers, 'Economic Hive;' 3, Morgan and Son, 'Morgan's Cottage Hive.'—XII. For the best and cheapest straw hive: 1, William Lonsdale, straw hive, complete; 2, Abbott Brothers, straw hive complete.—XIII. For the best two crates of sections, price not to exceed 3*s.* 6*d.*: 1, Abbott Brothers, divisible super; 2, William Lonsdale, 'Belfast Jubilee;' 3, Abbott Brothers, Economic super.—XIV. For the best collection of appliances: 1, Abbott Brothers, hive and super, feeder, smoker, veil; 2, Abbott Brothers, hive, veil, smoker, feeder. Very highly commended, Alex. Cross, Bryce, and Co. No. 3 'Morgan' bar-frame hive.

WINCHCOMBE AND SUDELEY FLOWER SHOW.

The Winchcombe and Sudeley Flower Show was held on the 17th Aug. in the grounds adjoining Sudeley Castle, and the gardens were kindly thrown open for visitors by Mrs. Dent.

The honey class showed a great improvement both in quantity and quality, and in the manner in which it was put up. Judge for honey, Mr. C. Marshall, jun., Cheltenham. Awards:—*Honey.*—Six 1-lb. sections of honey—1, Lord Sudeley; 2, Mrs. Jaynes, Warmington Grange; 3, D. Sheppard, Park Farm. Super of honey (non-sectional)—1, Lord Sudeley; 2, C. Staite. Run or extracted honey—1, D. Sheppard; 2, W. Harris, Winchcombe; 3, W. J. Smith, Beckford. *Cottagers' Class.*—Honey in the comb—2, John New, Gretton. Extracted honey—1, John New.

ABERDARE SHOW.—A CORRECTION.

In Dr. Walker's report of the result of the examination for experts' certificates, held at the above show, through a mistake the address was given as W. W. Williams, 14 High Street, Newport; it should have been W. Williams, 14 High Street, Caerleon, Monmouth.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. Huckle, *Kings Langley, Herts (see 2nd page of Advertisements).*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

IN THE HUT.

'To-morrow to fresh *woods* and pastures new.'

[1211.] My heading this week is doubly misleading. In the first place, the hut is now deserted and left to be used at the sweet will of such earwigs as may find in its old hay-stuffed seats a nice warm home during the coming chilly autumn nights—left to the wood-lice, spiders, centipedes, and damp; for we have gone amongst the heather, and when we return the early closing movement will have come into operation amongst the huttites. Our smoke-offerings and oblations will be paid at the fireside—by the cosy ingle neuk—in preference to the influenza-laden air of the fairy glen. In the second place, we sought fresh fields of forage fully a fortnight ago, and it is to-morrow we go to inspect the workings of our little black slaves in the dark recesses of their honey mines. Solomon tells us not to boast of to-morrow, for we know not what a day may bring forth; and one almost trembles at an absolute decision, with a falling barometer and copious showers, which, however welcome to us here, who for months have had our taps cut off all day except between 9 and 11 a.m., do not make the heart bound with glee at the thought of wading knee-deep through wet ling. Besides, we each take little huttites with us, worthy little scions, whom we wish to be bee-masters in their day. Little pitchers these, with wide ears! Truly it is worth all the bother and cost of the trip to see the young scamps romp about in the sunlight, just 1000 feet above sea level—now gorging on bilberries, then on hard-boiled eggs, qualifying all with copious draughts of new milk.

'Ah, happy years! once more, who would not be a boy!' if only for our stomach's sake, as Paul said unto Timothy. Fully fledged huttites, by the way, follow Paul.

Such of our readers as haven't seen it, I commend to the bee-keepers a Jubilee joke in the shape of the following advertisement on the last leaf but one of *B. B. J.*, Aug. 18th. It is as follows:—'Take notice. A rotten bad stock of Bees in Bar-frame Hive, to be sold Cheap. Price 1*l.* 5*s.*, or as much more as the purchaser likes to fork out.'

There is some formic acid being slung about in place of ink somewhere, I ween. I don't think it is the Ruhl, but the exception, for Swanmore bee-keepers to sting thus. It's one more than enough.

Let me introduce E. Garner to Douglas Cooper on the same page. The one wants, and the other wants to sell, driven bees at the same price per lb.

What fun if the swarm of bees in the Dunbar shop turned out to be those particular bees of Mr. Clark's,—

> The bees which nothing can quell,
> Antenna-less bees, without smell
> (Or scent organs rather) a cell
> Of a queen-grub I'd heartily wel-
> Come at Horsforth.

'L. Y. D.' makes a chaste answer about being 'caught in the act.' His remarks are far more easily understanded of the people after his explanation; but what must we say about the 'July 4th' oration on p. 299? Read it again, dear reader, and mark well, as a treat, the following:—'What is to be done? Happy thought, the hydropult!' Had one huttite I know been there the writer of the lines would have had the contents of the squirt instead of the bees. We are reminded of the pastor's sons who had to stay at home to watch for swarms. Did they not take a bucketful of water and a garden syringe, some long pipes, and a jug of ale? And did not they use the syringe every time the bees showed signs of swarming? Again I quote, 'There is still some water in the pond, though the pump in the yard is dry.' Pity about the pump being dry, but what must be done to him who suggests the alternative, the pond?

'A sudden thought strikes me, let us swear an eternal friendship.' *The Rovers.*

Let us all think of this when we find the contents of our inkpots becoming acidulated.

Joke.—Formic acid cannot be truly classed amongst the acids, for is it not an ant-acid (*Formica*, an ant)?

I notice this month's *l'Apiculteur* gives honey as a remedy for warts. The warts are to be touched with honey two or three times a-day. X-Tractor.

A VISIT TO MR. F. REED'S APIARY, PORTSLADE, BRIGHTON.

[1212.] To the north-west of Brighton lies the picturesque village of Old Portslade, in one of the nooks on the southern slope of the famed Southdown Hills. We arrived at the station and took our way through the quaint village street, and came to the noted bitter-ale

brewery of the Messrs. Dudney, and out into a deep valley, beautifully wooded, and, passing through the well-arranged grounds of a very luxuriant fruit and vegetable garden, could not but admire the quiet and peaceful scene presented to our view, while the blue smoke emerging from among the lofty trees recalled the lines—

'I knew by the smoke that so gracefully curled
Above the broad elms that a cottage stood near,
And I said in my heart, "If there's peace in the world,
A heart that is humble might hope for it here."'

For, delightfully situated amid the gardens and orchards, we came upon the residence of the proprietor, Mr. William Reed, and here met the genial owner of the apiary we had come to inspect. In apparently delightful confusion, 'far from the madding crowd,' were the various colonies of busy workers forming the 'Stonereigh Apiary' of Mr. Frank Reed, whom we found busily engaged among the industrious denizens. Truly, this seemed a bees' paradise. Sheltered completely from the north-east blast, and protected from the south-west gales, we could scarcely imagine a more suitable locality for an apiary, while around were the open fields, within easy distance the thyme-decked hills, with fruit-trees close at hand, and the thought struck us as to how much the splendid crops with which these were laden were owing to the fertilising labours of the industrious workers of the apiary. Donning our veils, we were soon deeply occupied in investigating the various mysteries and appliances belonging to the science of modern bee-culture. As the different processes of the art were brought under our notice in the lucid and practical manner in which they were, you would hardly wonder at our surprise, especially when the ease and confidence with each was carried on among the thousands of bees around us. Whether familiarity in this science, like some others, breeds contempt we know not, but each stage of manipulation was carried on by Mr. Reed with the greatest *abandon*. Here we saw the process of queen-raising, there the building up of weak colonies into strong stocks, there brood was inspected, frames of cells were offered for our inspection, the egg of an hour's age, grubs of a few days, the partially developed pupa, and the young bee just perfectly emerged, and in a few hours to take its place among its fellow-workers; drones and queens were brought under notice in due course, then the wonderful manipulation of that important process, queen-raising, was explained and illustrated. Queens were taken from hives for direct insertion into others for the introduction of new strains, others were enclosed in those curious little cages for transmission by post, drone-combs were transferred from one colony to another; the status of others was examined with reference to capabilities for the winter period, and notes made as to the requirements, to be attended to at an early opportunity. Now we were invited to see—what shall we call them—slabs? Yes, that is the most fitting name, slabs of the brightest honey we ever saw. We could fancy the shades of our Saxon forefathers stalking among the luscious stores which furnished the materials of their favourite beverage, for here seemed enough to supply the wants of Valhalla. Honey of Hybla never possessed richer flavour, more delicate aroma, or golden tint than that submitted to us. We have sampled specimens from all parts of the world, but Sussex can hold its own against all comers for aroma, flavour, body, and hue. The tint most prevalent we observed to be that of the finest wheaten straw. Having given the greater portion of our limited time to the various processes and appliances, we looked round again at the various palaces of industry and their occupants. Specimens of almost every kind of hive were to be seen, and their special features were pointed out; after considering the whole under review, we came to the conclusion that for all general purposes nothing better could be wished for than Simmins' Economic Hive. One, a special observatory hive by Rusbridge, must not be passed by in silence, as by it many of the mysterious habits of those wonderful insects may be made more plain to the ordinary student of the apiary. Sections, too, of a very manageable kind constitute part of the economy of this system, when we recall to mind the old cottage system of the straw hive, and recollect that, at this time of year, what holocausts of bees were offered in order to obtain the results of their labour, we cannot but admire and rejoice that among the many advances in scientific labour few have made more and practical progress during Her Majesty's fifty years' reign than that of the apiary. And now, as to the varieties of bees forming the myriads flying around us in every direction. We find this hive contains a variety known as black; keen, sharp, energetic little fellows they are. Here we come upon Ligurians, hard workers, with their bright bands. Now we arrive at a colony of hybrids, black and Ligurian. These have a more robust form, and from the weight of their stores—we tested several—are evidently good workers; but what have we here? What beautiful, glossy, gentle creatures these appear to be. Our obliging friend informs us these are the noted Carniolan bees, and truly for beauty, physique, and working capabilities, these must be considered the bees of the future. Our friend tells us they are the best winterers, a most important point, early swarmers; one of the first swarms this present season in this neighbourhood being from a Carniolan hive in May, and as for their working capabilities they are *facile princeps*. We had ocular demonstration of their energy and perseverance; even now they seemed as full of vigour as in the height of summer, and were storing pollen in vast quantities for spring use, while the honey produced is of the highest class for grain, body, aroma, and quantity. We could still write on, on this little-known apiary, telling of the valuable work that is being most assiduously carried on in the most unobtrusive manner, and we feel convinced that more real progress in the science of apiculture is being made here than in many more pretentious establishments. We are sure that should any of our readers feel disposed to pay a visit to the Stonereigh Apiary, Portslade, they would receive a most cordial welcome from our respected friend, Mr. Frank Reed, and not regret the time spent in looking into some of the mysteries of 'the little busy bee.'—E. New, *Southwick, August* 18.

EXTRACTING FROM BROOD COMBS (1204).

[1213.] I would like to say a few words on Mr. F. Boyes's 'thought' on extracting honey from brood combs, which he calls a barbarous method. Now I have had some experience in extracting honey. I have extracted over 600 lbs. this year and have been awarded three first prizes for it, and shall be glad to forward a sample of it to any analyst for his opinion, for I feel certain it will not be found 'liquid' or containing any of the dirty water that he speaks of, for I don't believe that bees are such fools as to visit such places as 'manure-heaps, stagnant ponds,' &c., if there is good water within three miles of them; and if they did visit such places and carry such stuff into their hives and mix it with honey I should be greatly afraid of some disease arising from its use. And then I find it is necessary to use the extractor freely; when there is a honey glut to give space for the queen to lay, or if not the stock will soon dwindle away. There will be very little honey got in sections or otherwise, and there will be a very poor stock for wintering mostly old bees, and as to injuring the brood it never does, no matter what stage it is in, if the extractor is a good one and used with caution. I therefore cannot think how Mr. Boyes can put such 'thoughts' into the *Journal*, unless it is to run down *pure extracted* honey and leave our market open for adulterated foreign honey —G. T.

REMOVING MIDDLE SECTIONS.

[1214.] Will you allow me space to put myself right on the record? Not that I want to pick any quarrel with your correspondents, for I hold it as one of the foolish things to allow feelings of jealousy because we happen to be on opposite sides of 'the big pond,' and I look with interest for the weekly visits of the *B.B.J.*, glad to learn all I can therefrom. We be brethren.

On page 312, *B.B.J.*, Mr. F. Boyes objects to my removing the middle sections as soon as they are sealed. I am not sure that Mr. Boyes' objections are valid, for, although I do not practise it, I am told that one of our most intelligent bee-keepers does practise it and with good success, as a crop of over 30,000 lbs. in a single season can testify. But Mr. Boyes merely quotes from your interesting correspondent, 'Amateur Expert,' whom I must hold responsible for getting things a little out of plumb.

'A. E.' says, I use 'the Heddon slat honey-board as a queen-excluder.' I use it solely to prevent building of brace combs between the sections and the top bar of the brood frames. Without it my queens do not go into sections, and if they did the slat honey-board would be no hindrance, as the passage-ways through it are three-eighths of an inch.

Then 'A. E.' proceeds to say, I take 'the middle sections away as soon as filled, putting the outside ones into the centre of the crate to be finished.' My good friend, 'A. E.,' how could you have understood me as saying anything of the kind? Let me quote just what I did say:—'When a super is filled, or so nearly filled that only the outer sections lack a little of being finished, it is taken off and the unfinished sections of several such supers are put into a super to be put back on a hive for the bees to finish.' Don't you see that's almost the opposite of what you say? In strictness I should have used the word 'finished' or 'sealed' instead of the word 'filled,' as the sections are all entirely filled with honey when I take off the super, there being only a little lacking in the sealing of the outside sections.

Of course all Yankees brag, so please allow me to brag of my honey-crop this year. From 363 colonies, spring count, I have taken about 300 lbs. of honey, or about 13 oz. per colony. How much I must feed for winter I don't yet know—Drouth.—C. C. MILLER, *Marengo, M'Henry Co., Ill., Aug.* 11.

WASPS INJURIOUS TO BEES.

[1215.] I cannot agree with your correspondent (1207) 'W. M.' (query, 'Wasp-Master') when he asserts that wasps do not interfere with bees. My experience (see *British Bee Journal* for 15th Jan., 1885) and that of many bee-keeping friends is that wasps plunder every hive into which they can force an entrance. An acquaintance of mine in the next county more than once lost every stock of bees in her garden through wasps. They were legion about those hives, late and early, till every drop of honey was gone, and every bee dead. This happened some years ago, and those wasps or their descendants have not changed, for since I began to write this, a letter has come from that lady, in which she laments regarding her bees, 'We are persecuted with wasps,' which I quite understand.

If 'W. M.' has 'never seen or heard of wasps doing any damage whatever to hives,' his experience and reading must be extremely limited. I am no novice in bee-keeping, unless nearly forty years is reckoned such, and I am not afraid of wasps. I do not 'get frightened, and spit and strike' one when it comes near me, but I keep them down all I can because of the harm I have witnessed them doing to bees. And, by the way, my bees have been doing extremely well, though wasps are scarce on my glebe; and I have not this season had a single cell polluted with 'aphidal excrement,' which should have been the case if it is true that wasps benefit bee-keepers by consuming 'green flies.' Rats are excellent scavengers, they clear off all sorts of garbage, but they do not benefit our stacks of grain, and we keep them down. Cockroaches are also adepts in clearing up waste and refuse about kitchens, but they can increase inconveniently, and they do attack jam, bread, and other eatables not intended for their delectation. According to 'W. M.'s' reasoning, no rat or cockroach should be killed, they should be allowed to multiply, and do as they please, because their place in nature is to devour offal. But no 'R. M.' (Rat-Master), or 'C. M.' (Cockroach-Master), will make a disciple of me, no more than 'W. M.' about his pets, the wasps.

I have just read in a Dublin newspaper of this week of the enormous number of 430 wasps' nests beng taken and destroyed inside the last four weeks within a short distance of Longford. Now I should greatly like to know if the 'wasp-keeper' to whom I alluded in my communication above referred to, is still alive and pursuing his craze in that county, and it would also be interesting to know on what terms the bees and wasps stand in the same district; whether there are many bees, and whether there has been a good yield of honey this year?

The case adduced by 'W. M.' of a skep-owner leaving 'a hive full of honey, but empty of bees, out till September or October,' is one that I can scarcely think ever occurs in practical bee-keeping. Surely a hive full of honey out of which the bees have been sulphured—which is the only condition I can suppose—would be stored indoors if unsold.

I may tell 'W. M.' that I do not use a veil, and when I am occasionally stung, and it happens very rarely, I do not experience any swelling or other inconvenience, but then I am told by my family that I am thoroughly inoculated—sting-proof.

Having answered 'Wasp-Master,' I wish to ask him, How long has he been observing the habits of bees and wasps, and how many stocks of bees has he of his own?—H. W. LETT, M.A., *Aghadery Glebe, Loughbrickland, Co. Down.*

PARALLEL *v.* RIGHT-ANGLED FRAMES.

[1216.] This is a question that I hope all bee-keepers will give their experiences on. I have been at the trade in earnest the last five years, but have not seen one skep with the combs at right angles to the entrance this season, and I have seen over more than a hundred of them. This locality has never had foul brood in it that I know of, and the frames are mostly all parallel to the entrance, and the floor-board is clear of the frames half an inch, with a quarter of an inch bee space round the ends, and we have the satisfaction that the snow does not take the bees out to die in winter, as they do in the right-angled frames. I think it would not be difficult to find a better theory for foul brood than parallel frames. The bee in her natural state does not pay attention to angles of any sort. They build where most convenient. Although I have not seen one skep with the combs at right angles with the entrance this season, I *have* seen them, and at other angles besides.—N. P., *Lochhill, August* 22.

[On the position of the hives depends the range of the combs. Our contention is, that if a hive is placed *perfectly horizontal*, in almost every case a swarm of average size will build its combs from back to front. This we have proved in many hundreds of instances, both in skeps and box-hives. Bees, of course, cannot build combs contrary to the force of gravitation. If a skep or box-hive, having neither foundation nor frames, be placed horizontally and then slightly raised, say, from half inch to an inch at the back, the bees will always build from back to front.—ED.]

RIGHT-ANGLED AND PARALLEL FRAMES.

[1217.] I was pleased to see your correspondent's ('E. Musgrove') letter in your *Journal* of the 18th inst., as I have myself fancied that the parallel are not so good as the right-angled frames, owing, I presumed, to the ventilation not being so perfect.

I am about to build a hive which, I trust, will obviate this difficulty, viz., to give a space between the frames and the floor-board of one inch at the back of hive, descending to two inches in the front, thus giving a sloping floor-board. By the extra space I hope to secure efficient ventilation, thus assisting, I hope, in keeping down foul-brood, and by the sloping floor-board to help the bees in removing refuse from their hives.

I believe it is generally acknowledged that the extra space is beneficial for wintering, but that it is doubtful whether comb will not be built in the extra space during the summer; yet even with the experience I have had I find in summer that even with Lee's frames—with comb foundation filled in to bottom bar of frames—the bees actually remove about half an inch of the lower portion of foundation, thus *making* a space exceeding one inch. Why do they do this if they object, as stated by many bee-keepers—to an extra space at the bottom of hive?

I shall be glad to hear of the experiences of any of your readers on the subject, as I am only a novice, this being my second year at bee-keeping. I may mention that, as I work on Simmins' non-swarming system, and have found it up to the present satisfactory, I do not care to take to the frames at right-angles to the entrance. —J. T. Pattison, *Chelmsford Road, Woodford.*

BEST TIME FOR MANIPULATIONS.

[1218.] Regarding the above subject, according to my experience, I consider that in the honey season when the bees are working is the best time for examining a hive, whether in the shade or not, especially a very strong hive, as a considerable number of the bees are away foraging, and a hive can be examined much quicker and easier than in the morning or evening when they are all at home. But now when the honey season is about over it would be risky to open a hive during the middle of the day, as it would be sure to cause less or more robbing; therefore I find the evening the best time, as the bees very soon get settled after the manipulation, whereas if done in the morning it causes a commotion about the hive during the day, and is likely to attract robbers.—G. T.

BEST TIME FOR MANIPULATIONS.

[1219.] I have examined hives, comb after comb, inserted frames of comb and foundation, cut out superfluous queen-cells, put on crates of sections—this past season I had as many as five on one hive, and I always place the first empty one next the frames—taken off sections and crates at all hours of the day, and I decidedly prefer to do so on fine days during the honey season between the hours of ten and twelve o'clock, when a large proportion of the bees are afield. And I may tell Mr. Chenevix that my hives are not all shaded, only one enjoying that advantage, and a very great advantage I certainly found it during the summer of 1887.—H. W. Lett, M.A., *Aghaderg Glebe, Loughbrickland, Co. Down.*

THANKS, AND A REQUEST.

[1220.] I beg to thank Colonel Dumaresq and Mr. R. R. Godfrey for their kindness in answering my inquiry. Also to say I think such explanations and advice as they give are calculated to encourage all inexperienced bee-keepers; and if Colonel Dumaresq will be kind enough in your next to give us a little of his experience about foreign bees (as I own I know nothing about them) and how to commence operations so as to start with them, and if now is the time, or wait till spring of next year, or any other advice he can give, it will be esteemed a favour by—Member Worcestershire B.K.A.

HONEY YIELD—LEE'S SECTIONS—BEES IN THUNDERSTORM.

[1221.] It may interest some of your readers to supplement my letter, No. 1136. The hive there mentioned has given me to the end of July 83 lbs. of very fine sections—in fact, I have not had honey of such good quality since the great comet year. I expect to take a few more sections on Monday, as I have been away from home for a month, and left a few half-finished sections in the hope that they might be completed. Of course, the yield is nothing very marvellous, though decidedly good for this very dry season, with an entire absence of warm, damp, honey-producing nights. Having only just restarted my apiary here on a very small scale, I know too little of the neighbourhood to gauge the amount of honey to be obtained, but fancy that very large returns may be expected. I have used Lee's sections largely, and am entirely satisfied with them, and shall probably use no others next year. Did any one note how exceedingly vicious bees were on the day of the thunderstorm, ten days ago? It was an excellent opportunity to test 'apifuge.'—A. G. Radcliffe, *Fonthill, East Grinstead, Sussex, August 27th.*

TIME FOR MANIPULATING—INOCULATION, &c.

[1222.] In answer to Mr. Chenevix in your number of this date I must say that my experience is in harmony with his and contrary to your own. Throughout the hot weather my bees attacked me invariably if meddled with between ten and five; after seven they could usually be handled with impunity, but when very hot a later hour had to be chosen.

The alleged 'inoculation' of stings I believe to be a delusion. Last year I took a stray stock of bees out of my roof. I had first to put up a scaffold and to remove the slates at about forty feet from the ground. When the nest was opened my smoker suddenly gave out and refused to work. My bee-veil I was obliged to lend to a friend who volunteered to help me. The stock was a strong one—I daresay there were 30,000 bees—and I believe that every bee except the queen and two others left its sting in my skin; the two others stung my friend. When the job was over I appeared as if I had begun to turn into a hedgehog. During the present summer I have been stung on an average about twice a-day for three months; yet I am not inoculated. I don't find that the stings hurt less than formerly. I think they hurt more.

I have no doubt that the inoculation theory has arisen from the fact that the pain from bee-stings varies very much with different stings. Nine stings out of every ten hurt very little, but the tenth is a fine test for self-control. If you can stand that without howling you are a stoic. Now, when a man first begins to manipulate bees his want of skill brings him a good many stings, and among these are sure to be some of the severer kind, and his natural funk leads him to exaggerate the severity of the stings that he gets. As he becomes used to the business he gets but few stings, and as nine out of ten of these don't hurt much, he thinks he is getting inoculated; but only let him wait. The tenth sting is sure to come, and then see what he says about inoculation!

As I am writing to you, let me mention other topics. I cannot see the value of wired foundation. I have extracted this year a number of combs that were foundation three weeks before, and have had no breakages and no trouble of any kind.

I do not agree with Mr. Boyes's objections to extracting from brood combs. If done with ordinary care it does no harm whatever to the brood, and the honey is absolutely indistinguishable from that in other combs; in fact, as the outside combs are brood-combs one week and honey-combs the next, it would be hard to make out a difference between brood-comb honey and honey-comb honey.

Wasps are very numerous here and do not appear to do any harm.

Bee-keepers should not be too ready to assume that a stock is queenless. I examined this week a stock covering sixteen frames, in which there was not a particle of brood in any stage, and there were numerous drones, all other stocks having killed their drones a month ago. I gave them a frame of eggs and a pint of syrup, and next day no queen-cell was begun, and there were eggs on two other frames.

To estimate the amount of honey that should be left for wintering by the superficial area of sealed comb is most misleading, since some sealed combs are two and a quarter inches thick and some not more than three-quarters of an inch. The former will weigh five pounds and the latter less than one.

I have all my hives made the same pattern and same size, thus every roof and stand fits every hive, and every hive body will double any other.—C. A. M., *August 25th.*

[We advise inquirers and correspondents according to our own experience, and not from theory. Opinions will always differ, and if in the honey season any, contrary to our advice, find that they can manipulate better in the evening than during the hours of flight, by all means let them do so; or if they find unwired foundation equally as good as wired, let them use it. But if any are anxious to become sting-proof we certainly do not advise them to persevere in the attempt to the extent of receiving 30,000 stings in the course of one operation, since we fear to many constitutions such a course *might* prove fatal!—Ed.]

NEPETA.—LIMNANTHES.—SUNFLOWERS.

[1223.] If your readers will turn to page 301, No. 1154, they will there see that in consequence of many of our bee-keeping friends failing to strike the cuttings of *Nepeta Mussini*, I promised to strike a large quantity, and when ready, to offer them to those who would like to test the value of the same, and I beg to say that I have now a goodly number ready of nicely rooted and strong plants, and some with a little bloom upon them. But it must not be understood that my position in life will admit of me sending them on the same terms as I sent out the cuttings, so, in justice to myself, I must put a price upon them, and I have inserted an advertisement in this issue. I have plenty of limnanthes seed, and shall be pleased to send some to any who would like a little. It is now quite time to sow the seed, and plant out when ready. I sow the seed in rows two feet apart, and thin out the plants to the same distance in the rows, and they completely cover the ground, and do much better than when I have left them closer together.

I am sorry to say that I cannot offer any more borage seed at present, as the green linnets have laid upon it so very closely, and taken nearly all the seed away long before it has been ready to cut for seed. I am glad to say that it does not appear to interfere with the blooming of the plants. I have still large masses of bloom, both borage and *Nepeta Mussini*. The latter is still, and has been, one mass of bloom ever since the middle of June, and this will continue until the frosts come and put a great check upon it, but it does not kill the plants, as they are perfectly hardy, and the older they get the stronger they grow each year.

Just a word in reference to sunflowers. It may appear strange to some for me to say that I never can find any bees visiting them, although there are many of them grown near, and the bees fly right over them to get what I suppose they like better. This may be accounted for by the difference in the soil in different localities.—C. H. W., *Aylesford, Maidstone.*

VENTILATION.

[1224.] It seems to me that bees cannot have too much ventilation by the entrance at any season except when robbing is going on. I have, therefore, cut away part of the entrance slides, and nailed on perforated zinc. Why should not all entrance-slides be thus made of perforated zinc? They are of no use except to prevent robbing. Ten or twelve inches of entrance is surely best when robbing is not going on. A simple plan (by which a dozen may be made in a few minutes), is to take two sides of an old section, plane the edges, to make them the right depth, cut the piece of zinc, and nail about an inch of it between the two pieces of wood by a single French nail, which, of course, must be turned down and hammered in at the back. No other nail is required.—L. Williams, *Wheatley, Oxon.*

P.S.—There are many wasps in this neighbourhood.

DOES BEE-KEEPING PAY THE COTTAGER?

[1225.] I found and hived a swarm of bees (vagrants) the second week in June on six frames of worked-out comb, and added four frames of comb as the bees required them, and when the ten frames were well covered I put on a crate of twenty-one sections and left them to do their work in peace, which they seemed to do with great energy; but judge of my surprise on Saturday, when I thought of taking off sections partly filled at the least, to find them empty, and only about two inches across the top of each frame with sealed honey, and the hive full of bees and nearly all the combs with some brood in all stages in them. So much for the vagrants.

I then hoped to find better results from the only hive I saved through last winter out of eighteen stocks, the result is the seven frames are well covered with bees and a little honey at the top of each frame, and brood in all stages in the frames, but a frame with six sections fixed in it, placed behind excluder-zinc at the back of the hive, was empty. This stock was fed in the spring on sealed honey; I did not expect much from this stock, as it was a lot of last year's driven bees and the queen was hatched in June, 1886. I may say four of the stocks which died in the winter were in straw skeps, the rest in bar-frame hives, and they did not die of starvation, as frames in all the hives, except two, contained sealed stores after they were dead; also each of the skeps had sealed stores after they were dead.

Nine queens that died were hatched in 1886, four in 1885, and four in 1884.

The eighteen stocks had about 2 cwt. of sugar given them in thick syrup in the autumn, and no honey was taken from any of them last year.

I have plenty of clean and empty worked-out combs and empty hives (my own make), but no honey, so I think I may reasonably ask does bee-keeping pay—A Cottager?

INDIAN BEES.

There are four species of honey-producing bees in the Wynaad. The largest (*Apis*, Sp.?) builds, as a rule, on the inaccessible ledges of precipices, preferring such as overhang rivers; also on the largest trees in the forest, preferring those that are isolated, and have numerous horizontal limbs. Such trees, as *Bombax malabarica, Mangifera indica, Ficus*, &c., are usually preferred, and

the colonies return to them year after year without fail. Such trees and precipices are known as 'Burrays,' and used to be the property of Kurumber 'Hadis' (villagers), each Hadi possessing a certain number of Burrays. Such Burrays are now the property of Government, except where they are situated in private lands. There are two crops in the year, in May and November, and the honey and wax are gathered when the nights are dark, *i.e.*, just before *ammavassi*, or new moon. The combs are usually built, when on the ledges of precipices, facing the north-east, to avoid the blow of the south-west monsoon. The comb is semi-globular near its attachment to the rock, and 2½ feet to its junction with the lower half, in which are contained the larvæ. The pollen, which is the principal food of the latter, and is generally known as bee-bread, is deposited in the cells at the junction of the upper and lower portions. The queen and drone-cells are generally to be found near the edge of the comb. A fortnight after the larvæ attain their full development, and appear as imagos, the colony splits into two—the parent and infant colonies separate, and seek other trees and fresh pastures. The number of colonies that seek a Burray in a season depend entirely on the season and the amount of flowering trees in the neighbourhood. The bees, when they desert the tree and comb of the season, do not make their way to the nearest Burray, but frequently travel for a week or ten days to distances of over a hundred miles, even crossing such mountain-chains as the Nilgiris in their migrations.

The best honey-producing flower of Southern India is the *Strobilanthes*, which not only forms the principal undergrowth of the Sholas, both temperate and tropical, but spread over the grassy slopes of the higher elevations.

There are an immense number of species in this genus, and they almost all flower once in seven years, dying down entirely, and afterwards a fresh growth springs up from seed. Whenever any species of *Strobilanthes* flowers, colonies of bees migrate from all parts of the country to feast on the honey, and rear their young broods. At such times honey becomes plentiful and cheap, and as the *Strobilanthes* honey is of the finest quality and flavour, even rivalling that from the famous Mount Hymettus, it is eagerly sought after by the Todas of the Nilgiri hills, and in fact all the aboriginal tribes. The year 1879 was such a season for honey that it sold at the rate of 4 annas per imperial pint, whereas its usual price is from 8 to 10 annas. This honey in the cold climate of the Nilgiris crystallises in from a fortnight to three weeks, when the flavour becomes richer and finer. In the Wynaad, as soon as the moon has waned sufficiently, great preparations are made to take the honey. Bamboo and rattan ladders are constructed. These are sometimes of astonishing length, and at nightfall, after 9 p.m. (for the bees do not go to bed till then, as you will find to your cost if you disturb them), the *Jain* (honey) Kurumbers proceed to the Burray, and having erected their ladders if they have to climb upwards, or suspended their cane ladders if downwards, arm themselves with torches and knives, and sever the combs from the rock or branch. The drowsy bees, meanwhile roused by the glare of the torches, desert the combs and buzz aimlessly about, alighting in thousands on the rocks and branches about, and even on the persons of those engaged in taking the combs, but never attempt to sting, unless crushed or hurt. The combs are then lowered down in baskets, the Kurumbers feasting on the larvæ, which taste something like cream, whilst the fish which swarm in thousands when the hives are built over a river have a glorious feed on the grubs and bees that fall into the water and float helplessly down stream. The upper portion of the combs containing the honey is detached and thrown into a coarse canvas bag, which is squeezed with a tourniquet, the honey flowing into a copper caldron, in which it is afterwards boiled to prevent fermentation. The wax is boiled separately in water and then strained; it is afterwards melted and moulded into sheets, which, being exposed to the sun to bleach, are remelted into blocks of a hundredweight each. To attempt to interfere with these bees during the day is madness, and many a sportsman and traveller has barely escaped with his life after doing so. Indeed it is no light punishment to be assaulted by the countless hosts of infuriated bees that attack you on the slightest provocation; and it is only necessary to light a cheroot, and sometimes even merely to go near them, to draw down their vengeance on your head. Nothing can then be done but to hasten to the nearest pool of water, and leave nothing visible but your nose above it. I could give numerous instances of men, cattle, horses, and even fowls and pigeons, being killed by those bees; but I have no space for such in this letter. These bees, however, will not attempt to sting you unless they have stores of honey and their young to guard, for it must be remembered that the insect sacrifices its life when it stings you in the defence of its hive and young; the sting being so constructed that the poison-bag is torn out of the body when the bee tries to withdraw the sting from the skin in which it is firmly fixed.

The next species of bee which I am now going to describe is about half an inch in length, and of a dark-brown colour, the abdomen ringed with pale yellow. The thorax is generally infested with a minute parasitical insect. It forms its combs in the hollows of trees and rocks, and sometimes in hollow caves of the termite nests, which are so abundant in the Wynaad. Unlike the first-mentioned species, its combs are of nearly the same thickness throughout, *i.e.*, nearly three-quarter of an inch between each row.

The honey is superior to that manufactured by the cliff-bee, and thicker, but is occasionally poisonous when the honey is collected from such plants as the various species of Lobelia. It is then acrid to the taste, and, if swallowed, produces nausea and violent purging.

This bee I believe to be identical with European species, and more like the Ligurian variety. In Coorg it is domesticated, and the hives, made of the hollowed-out trunks of trees, are placed near houses; but the Coorgs have no notion of collecting the surplus honey by such contrivances as bell-glasses, &c., as they do in apiaries at home.

On the Nilgiris I have tried numerous experiments, and succeeded admirably. There is no reason why apiculture should not be successfully carried on at Ootacamund, and other highlands in Southern India. I found that an ordinary beer-cask, placed in a warm and sheltered situation, made the best hive; a small board nailed on near the bung-hole serves for the bees to alight on when leaving and entering their hives. When the swarm has been thoroughly established, *i.e.*, when two or three other swarms have increased the strength of the parent stock, bell-glasses can be placed on the top of the cask over holes bored for the purpose, and removed from time to time, as they are filled by the industrious little workers below. When bees have ample space to work in, queens are rarely or never bred; it is only when the accommodation proves insufficient in the hole in which a wild swarm takes up its abode, that the young swarm has to look out for a fresh home, accompanied, of course, by its young queen. The Todas on the hills, when they take a hive, invariably block up the hole with two or three stones. This is done because these bees object to too much light. Residents on the hills are frequently annoyed by swarms settling in the tiled roofs of their houses, and stinging children and servants. This could easily be prevented by providing proper hives for them. Half-a-dozen empty casks would be immediately tenanted, and the honey could be turned to account.

In April and May, when the iron-wood (*Mesua ferrea*) blossoms, this honey is abundant, and of the most delicious aroma and flavour. Bees are very peculiar in their likes and dislikes, and, while they will allow one person to plunder their hoards without hurt, will violently sting others. It is difficult to explain this peculiar power which the bee-masters and bee-kings at home exhibit, but one of their great secrets undoubtedly is to treat the bees gently.—*The Asian.*

Echoes from the Hives.

Waterhouses, Co. Durham, August 23rd.—I never knew wasps so numerous as they are this year; we find them in nests every few yards as we pass along the roads. Last night, in returning from work at dusk I came upon three men taking some nests in order to get the grub for cage birds; they did not find much grub, and one of them said they had taken them too soon; if they had been a week or two later they would have been full of grub.—J. F.

Ringstead, Thrapston, Aug. 29.—The honey season in this district is now over, and most of the surplus honey taken up. It has been a very good one, and the honey is excellent in quality. I wintered thirteen colonies, and have taken over 800 lbs. of honey, and am now leaving sixteen for the coming winter amply provided for without feeding. I work on the storifying system, and leave the two bottom boxes for the bees to winter in. I generally find the bottom one to contain nothing but empty combs at the end of the season, and the one above to be pretty well filled with honey; and with honey at its present price I find it pays me better to leave the two, instead of crowding the bees into the bottom box and then have the trouble to feed them up. My best colony was wintered so last year on eighteen frames; it has given me over 100 lbs. of honey this summer, and I have left it again to winter on eighteen frames, the top box filled with honey and the bottom one with empty combs.—JOHN BULL.

QUERY.

[1226.] Can any reader of the *B. B. J.* kindly furnish me with a recipe for making a good honey beverage; quantity required, say 1 doz. 1½ pint bottles?—J. J. CHINNICK.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

JAMES HOUSTON.—*Borgue Honey.*—The high repute of Borgue honey has reached us. The samples from Borgue and the adjacent parish, Twynholm, Kirkcudbrightshire, well sustain its high character: from its flavour we should say that it had been gathered from wild thyme, from its appearance from sea-lavender (*Statice limonium*); but we should require to know some further particulars as to the time when it was gathered, &c., before we could speak with precision as to the plant from which it was produced. We received last year from a village on the coast of North Yorkshire a sample of honey similar in appearance, though not equal to the Borgue in flavour. It is desirable that some botanist of either parish should look into his local flora, where he will find Borgue the habitat of the plant of which our correspondent is in quest.

J. FENWICK.—*Wasps.*—We have in previous numbers given information respecting the natural history of wasps. These have much in common with hive bees. They live in communities. Each community consists of queen, workers, and drones. They do not swarm in the summer, however (as your informant asserts), like hive bees. All the community—queen, with workers, drones, and brood—die off at the first attacks of winter. The only survivors are the young queen-wasps, who, after lying in a dormant state during the winter, are revivified by the beams of the vernal sun, and then forthwith proceed to carry forward the economy of wasp-life.

LASCELLES CARR.—*Novice's Metal Corners.*—1. These may be procured from Messrs. Neighbour or most of the dealers in bee appliances. For the reasons stated in *Guide-Book*, pp. 33, 34, we adhere to them in practice. 2. *Absence of Distance Guides.*—In our pamphlet on *Doubling and Storifying*, recently published, speaking of the Cowan Hive, we say, 'There is a very important feature in this hive, and one to which we in a great measure attribute our uniform success. It is that our frames have neither distance-guides, pins, nor projecting shoulders, and that we can bring them closer together or put them farther apart as we wish without any difficulty.'

R. E. C.—*New Zealand.*—1. Having so strong a preference for Abbott's broad-shouldered frames, there can be no objection to your taking with you a supply; but we have no doubt that you will find in the colony every appliance that experience has found suitable to the climate.—2. Four years ago Mr. Firth started a bee journal called *The New Zealand and Australian Bee Journal;* it was edited by Mr. J. C. Hopkins. It did good service in its time, and considerably promoted the cause of bee-keeping in the colony; but, as it never paid its way, it was discontinued at the end of the second year, and incorporated with the *New Zealand Farmer, Bee and Poultry Farmer.* Since the 1st of July of the present year, the Bee Journal has been resuscitated under the name of the *Australasian Bee Journal*, which is devoted exclusively to the interests of bee-keepers and bee-keeping throughout Australasia. It is published monthly by Messrs. Hopkins, Hayr, & Co. The subscription to the *British Bee Journal*, post free to New Zealand, is 10*s.* 10*d.*, forwarded fortnightly.

H. W. WISE.—*Italians or Hybrids?*—Of the six specimens sent one is black, two have one, and the remaining three have two yellow bands. If the offspring of the same mother they are hybrids.

M. E. K.—*Fermented Honey.*—Do not feed your bees upon it, or you will surely produce dysentery. Yes, a damp store-room, where the honey is kept in closed wood case, would be very likely to cause fermentation. Earthenware or tin are the best receptacles for keeping honey in bulk. Very much depends upon the honey being perfectly ripened and sealed in the hives before extracting. Thin, unsealed honey, invariably ferments. We advise you to use it for culinary purposes.

J. C. BINDER.—*Temperature for Keeping Comb-honey.*—By experience we have found a temperature of from 65° to 80° Fahr. best for this purpose. Our sections are placed on shelves, with small spaces between the sections, in dark, well-ventilated closets, at a temperature varying from 65° to 70° Fahr., and, care being taken to keep them free from dust, we find them fresh and free from granulation, as a rule, the following spring. But much depends on the plants from which the honey is collected. A temperature of 100° Fahr. is too high.

TIPPERARY SUBSCRIBER.—*Preservation of Honey.*—The keeping properties of honey depend much upon the bloom from which it is gathered. Fruit, hawthorn, and white clover honey keeps best, and is less liable to granulation than that collected from most other bloom. Mustard, turnip, and the brassica tribes produce honey which quickly granulates. Sections should be well ripened and well sealed on the hives, and after removal should be kept in a dark, dry, well-ventilated room at a temperature of 65° or 70° Fahr. See answer to 'J. C. Binder.'

E S. A. GOUGH.—*Lavender Water—Peppermint.*—Lavender water is not as satisfactory as peppermint for the purpose, but there is little choice in the matter if the essence, and not the oil, be used. Pour a little flavoured syrup between the frames of both lots after having given them a good smoking.

GERALD TATHAM.—*Moving and Uniting.*—The hives can be moved any time during the cold season, choosing a day when no bees are flying. If you really wish to unite—a process which should give you a grand return of honey—it would be best to wait till next March or beginning of April. You should set your hives in pairs when you

move them so that when united there will be less disturbance of locality.

W. T. Cadness.—The expert of the district has kindly promised to call upon you and advise.

Exhibitor, *Northampton.—Judging Honey.*—You seem to entirely ignore the fact that there are different degrees of gravity, flavour, and translucence in honey, and seem only to look at the subject from an onlooker's point of view, viz., appearance. This is quite a secondary consideration; if otherwise, heather honey—the most expensive description—would have to remain quite amongst the lowest grades. Ask a North Countryman's opinion; he will tell you that light clover—'flower honey,' he calls it—is not worth a rap, and yet you would desire to see this same honey placed in a prominent position, simply because it was lighter in colour. As a point in judging, flavour is of the utmost importance as well as consistency. Some light-coloured honey tastes as so much sugar syrup, but, being light-coloured, you would give it a place among the prizes; we should pass it and give the prize to a good-flavoured exhibit although dark.

Jubilee, 1887.—It always gives us pleasure to report the Shows of Associations. We published the report of your Show as it reached us.

W. J.—The raw sugar, of which we have received a sample, will be found serviceable for dry-sugar feeding. Please refer to former numbers for the proper time when dry-sugar feeding should be beneficially resorted to.

J. H. L.—*Driving Bees from Box Hives.*—You may remove the box, from which drive the bees; return the bees to the frame-hive, and after putting excluder over a hole in the quilt, replace the box. The queen will thus be below, and as the brood hatches out of the box the cells will be filled with honey, if you have heather or other forage near you. Of course, if you take the honey you will have to feed them up, but this we would not recommend as you would lose the young brood. Breaking up the boxes and transferring the tender combs would mean a messy operation with honey and brood, and likely to start robbing. We should think if the two casts have filled ten frames they have not done badly. Try and prevent so much swarming next season by giving room in advance of requirements, and squeezing (not cutting out) queen-cells.

Your Correspondent,—We prefer that you communicate privately with the gentleman mentioned in your letter.

S. A. B.—The bees sent are English black bees.

Leicestershire Amateur.—Remove the bees from the heather when the pasturage is over.

W. C. N.—The parasite on the bees was the *Braula cæca*, or the bee-louse. These are not desirable companions, but they will die off as the season advances.

Co. Limerick.—1. *Pollen-clogged Combs.* As you say the honey has been removed from the combs you wish to store away, it is evident only a probably small percentage of the cells is clogged with pollen. Do not melt them up, the bees will clean them out in spring.—2. *Bitter Honey.* Quite likely the bitter taste proceeds from pollen becoming mixed with it in extracting. Honey being grape sugar cannot be other than sweet *per se*.

G. G.—*Utilising Heather Honey.*—By cutting the combs to pieces and squeezing them either by a fruit squeezer or in a cloth, you of course destroy the value of the foundation on which they have been built. The plan you propose of cutting the honey in the cells off close to the midrib, giving that to the bees to lick up, is the best. You may then squeeze as much as you can out of the cuttings, and by using a wax extractor the honey will run first, and then the wax, and so you will recover both with as little loss as possible. If you had not extracted the clover honey when the heather came on, but put on sections, you would have had these filled with the heather instead of the frames in the stock hive.

H. W. P.—*Moving a Hive a Short Distance.*—Wait until November or longer if the weather is fine and open. You may move it with safety at one operation when the weather is too cold for the bees to fly. Place a board against the entrance to call the attention of the bees when the first fine day occurs and cause them to mark down the new spot.

Received from 'G. T.,' Co. Donegal, a sample bottle of honey. We have a very high opinion of the qualities of this honey. It was of good consistency and colour. It possessed an agreeable flavour. There was a certain piquancy of taste about it which added to its pleasantness. One word of caution as to packing. Though packed in brown corrugated paper, we noticed on delivery that there had been considerable oozing in transit, and on removing the surroundings we found the bottle broken, and consequently almost all the honey was lost.

Received, from Mr. W. Elfred, a bottle of honey from his apiary in Warwickshire. The honey was clear in colour, rich in quality, and of a good consistency. It ought to fetch a good price in the market. We thank him for trouble taken in forwarding it.

Business Directory.

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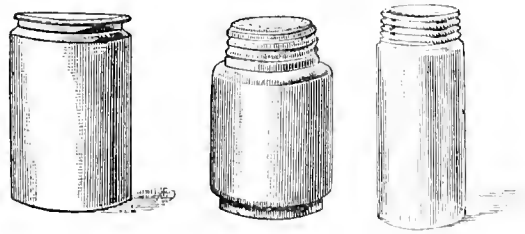

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Editorial, Notices, &c.

FOUL BROOD.

In our correspondence columns we publish two letters of considerable interest on this *vexata quæstio*. Mr. Ward's experiment, through a course of years, would seem to prove that the disease depends entirely upon the queen, and is in accordance with Mr. Simmins' views.

On the other hand, the 'Man of Kent,' in agreement with the compiler of 'Useful Hints,' when experimenting on diseased stocks, finds that healthy queens introduced to such stocks soon become diseased themselves. It is the old, old story, *Quot homines tot sententiæ*. Whether our views on any particular subject are formed from practical experiments, or whether the latter are undertaken in order to prove the former correct, quite unconsciously to ourselves, no doubt, there is a decided bias one way or the other. 'Man of Kent' has solved the problem to his own satisfaction, almost with an *à fortiori*, to the effect that there is no truth in the 'germ theory.' Now what is the germ theory of disease? If asked briefly to define it, we should say that it is 'the theory which supposes the cause of epidemic and contagious maladies to be due to the agency of specific small germs, different germs giving rise to different diseases.'

We certainly hesitate to pronounce the lifelong researches of such men as Professors Cohn, Kock, Pasteur, Tyndall, and many others, as utterly worthless, and the theory deduced therefrom as unworthy of credit. Assuredly the microscope is a great power amongst us in this nineteenth century; and when we consider that the blood of patients suffering from scarlet fever and containing bacteria being injected into the veins of rabbits, a feverish disease, which proves fatal, is immediately set up, we more than hesitate to proclaim our disbelief in the germ theory. This is one only of numerous instances, still more convincing, which might be adduced in proof of this germ theory. The experiments of Drs. Ferrier and Sanderson show that bacteria do not nominally exist in the fluids and tissues of the body, but that their presence in the animal fluids may be traced to external surface contamination. How can it well be doubted, then, that if a healthy queen be introduced into a diseased hive, she must, almost of necessity, contract the disease arising from bacilli? Dr. Beale tells us that extreme dryness will not destroy bacteria, and that they will withstand a temperature far below freezing-point, and, indeed, that they are not destroyed by a degree of heat which is fatal to *every other living organism*. Professor Tyndall has shown that, in one experiment, heating for a quarter of an hour at 230° Fahr. was insufficient to destroy them, while in another five minutes exposure of an atmosphere containing them to the incandescence of the voltaic current failed to kill them.

Now of bacteria the bacillus is the *most* tenacious of life. If, therefore, as microscopists seem to agree, bacillus is the cause of foul brood, we can no longer wonder at the difficulty of eradicating it. And since the germs, or spores, exist in the densely-packed pollen, in the cells, in the exuviæ, in wax, in propolis, and in what not, how shall a diseased hive be disinfected? Dzierzon recommends two years' exposure to the atmosphere!

Now, so far as our knowledge at present extends, *i.e.*, according to our present light, stamping out by reducing to ashes every contaminated hive, comb, or other article, and destruction of the diseased bees, would seem to be the only safe plan of dealing with this dire pest, which is already decimating our apiaries, and bids fair, if strenuous means are not adopted, to stamp out English apiculture itself at no very distant date. Has Mr. Cheshire no word of comfort for us? Why is he silent so long? In our opinion the fell disease will never be conquered by change of queens, phenol, salicylic acid, nor by any other known remedy. Our advice would therefore be 'Stamp it out, as the *Rinderpest* of apiculture.'*

We recommend the perusal of an article on this subject entitled 'The Creatures we Breathe,' by Dr. Percy Frankland, published in the August number of the *Nineteenth Century*.

* Should, however, our advice as above given be not carried out to the letter, and the hive be spared from the general destruction, let it be disinfected with a solution of carbolic acid, mixed in the proportion of three ounces of acid (Calvert's No. 5) to a quart of water. First mix the acid with an equal quantity of glycerine, and add the water hot, continually stirring same.

FOREIGN GLEANINGS.

British inventions seem to be well appreciated on the Continent, according to the *Revue Internationale*, which notices in its May number Neighbour's new section case, of which it gives an ample description accompanied by an illustration. Webster's fumigator is also both praised and described in a leading article entitled 'Chit-chat.'

The Editor also does us the honour of quoting our recent utterances respecting Grimshaw's Apifuge, and appends the result of his own experiments with it. He says:—'A certain number of testimonials have already appeared confirming the good opinion formed of it, and our own trials of it on our most vicious colonies permit us to add ours to theirs; it is wonderful (*merveilleux*).'

In the July number, M. Bertrand, the editor, devotes a special article to 'L'Apifuge Grimshaw,' which we have pleasure in translating:—

'We have continued our experiments with this new agent, and are more and more astounded with its efficacy. Having received a visit from several pupils who were desirous of seeing how we proceed in taking honey, we, in the first place, attacked a stock of Cyprians which had entirely filled three storeys. Putting on one side a little pardonable *amour propre* in one's profession, the hive was well chosen for such a demonstration, for this race is not always easy to handle; we were, however, soon compelled to discontinue, although protected by a veil and armed with a smoker (which, by the way, we only used after having vainly tried to operate without smoke, as is recommended with Cyprians). The bees were not slow in stinging us atrociously on the hands and . . . elsewhere; we were absolutely covered by bees, which introduced themselves at every possible point in our clothing. As they began to get very excited, attacking the assistants and even persons a considerable distance away in the garden, we closed the hive in order to resume the demonstration on other colonies less evilly disposed. The next morning we determined to be quits with our Cyprians by other means, and had recourse to Apifuge, with which we perfumed our hands and veil. Not the least excitement was produced, and we were able to take away 166 lbs. of surplus honey which the hive contained, without interrupting their working and without experiencing a single sting. One poor bee, squeezed against a frame, stung a finger, but we felt no pain from it. Apifuge is thus, in addition, an excellent remedy for stings, as we have since then been able to test and verify by renewing our experiments with this object in view; a drop of the liquid applied to the part which has been stung immediately soothes the pain. Several people have complained in the *British Bee Journal* of having had marks on their hands after having used apifuge; we have observed nothing of the kind, although we, with several colleagues, have submitted to numerous experiments. The only fault we have to find with Mr. Grimshaw's magnificent discovery is that the liquid is too dear, and from all we hear there is little hope that the price can be much reduced, the substances which enter into its composition being so costly. Here is what one bee-keeper says:—"I have tried Grimshaw's apifuge with the best success. I made two transfers from old hives into bar-frames without receiving a single sting; it is really *marvellous*, as you say, and I recommend all bee-keepers to use it without the least fear. To me, who am a novice, it is very encouraging, for I make my *debût* as an old soldier, who does not fear the enemy because he has never been wounded.—J. Obiols Amigo, *Barcelona, July 19th*, 1887."'

In *L'Apiculteur* (editor, M. Hamet) Apifuge is considered of such importance that copious translations from our columns are given for the guidance and instruction of French bee-keepers.

In 'Gleanings' Mr. A. I. Root speaks in somewhat qualified terms respecting Apifuge. After trying in vain to get stung by manipulating a hive of Cyprians, he came to the conclusion that had the bees been inclined to sting they would have done so—'apifuge or no apifuge.' The fact, however, remains the same, that he experimented on a vicious colony without being stung.

We notice also a contribution to the columns of the *Revue Internationale* from our valued correspondent Mr. W. B. Webster, besides another from M. Woiblet, recommending honey-water as a cure for warts. Altogether, it is pleasing to find bee-keeping assume such a good-humoured international aspect in which British discoveries play so important a part, and receive such courteous consideration.

With regard to Mr. Grimshaw's Apifuge, which has been so highly spoken of by advanced foreign bee-keepers, we own that it has caused us much surprise,—we may say disappointment,—that this agent does not appear to have received any recognition of its virtues at the hands of the judges of the shows held during the past season. We know not whether this is to be accounted for by the manner in which it has been staged, or whether there has been a difficulty arising from the inability of the judges in testing its efficacy. There can be no doubt that the arrival by Mr. Grimshaw of the value of Apifuge must have involved much thought and been the result of many experiments. And we feel sure that it would have been encouraging to him to have had his endeavours to assist bee-keepers in some degree acknowledged. During the past season the opportunities of ascertaining its capabilities have been very numerous, and a host of bee-keepers, both at home and abroad, are ready to testify to the comfort and confidence they have derived from its use in the manipulation of their bees, and to the alleviation of the stings they may have received. We are loth to believe that this is a case where the prophet is without honour in his own country; for we are well aware that the number of those who have benefited from the discovery of Mr. Grimshaw is very large, and would be pleased to express their gratitude to him for the same; and we are sure that if bees had voices they too would join in the loud acclamation.

MANIPULATING.

The present is the worst of all seasons of the year for manipulating. To the inexperienced and timid bee-keeper manipulation is never attended with unalloyed pleasure; certainly there is always a very large amount of pleasure to be found in examining a colony of bees, in turning the comb up so that the light illuminates the cells to their very bottoms, and reveals the tiny eggs so securely cemented in their places, or to watch the grubs from their first stages of life on to the time when they become ferocious-looking, burly fellows, almost too big for their habitation; or if we turn from them to the adult bees, and notice the effect the smoke and the sudden letting in of light has had upon them, how interesting to watch them standing with heads and thorax thrust into the cells lapping up the food that

they may be prepared for an emergency in case their home is about to be broken up. Here we see several rushing about to find a cell containing unsealed stores which have not already been taken possession of, while every now and again we behold one which has been fortunate enough to get fully gorged, readily giving up of her abundance to a less fortunate neighbour who has none, and in the midst of all this commotion we spot her majesty careering along with undignified haste and gait, scarcely knowing what to do under the bewildering circumstances with which she is surrounded.

At other times, especially on balmy, bright days in early summer, examination does not produce such a panic. A few will be gorging at the open cells, certainly, but the greater number will be quietly moving about, touching their neighbours with their antennæ to assure themselves that all is well. Here and there a bee will raise its wings with a sharp, peculiar 'whirl,' as if intending to take wing, but, suddenly altering its mind, will, perhaps, career around on its legs and remain with wings unfolded and unhooked looking somewhat ruffled and untidy, while her majesty may be seen going about her duties in the ordinary way, examining each cell, and depositing the tiny egg in each that she finds prepared to receive it.

To those of the fraternity who are lovers of nature—and which of us is not?—such sights are pleasant, and are apt to make one linger even longer than is sometimes well for the bees themselves. But our meditations are often liable to be somewhat distracted by the fear of being at any moment called upon to endure pain. A recent correspondent in the *Journal* seems to entertain the idea that some of the old veterans are inoculated so as to be exempt from pain. I have yet to find the bee-keeper who has attained to that happy state. A sting causes me as intense pain as ever it did, but the pain is of much shorter duration, and, not being attended with swelling, as in our early bee-keeping days, one is saved the pain and soreness consequent on the inflammation and swelling; but as to pain, my potentiality of pain is great,—greater when I become conscious that my pen has inflicted pain on a brother bee-keeper than it is when a vicious bee has stung me so as to draw blood, and far more enduring.

If all the bees would keep to their combs and not take to their wings it would be a great comfort to those of us who are timid. Or even if those on the wing would alight on something else and not the operator it would be a great boon. The inquisitive way they have of buzzing around one is a trying ordeal to one's nerves, but the instant they alight on one's bare flesh the anticipation of what will probably follow is too much for timid human nature. The skin is drawn up, the muscles are contracted; the bee feels the ground thus agitated under its feet, and whereas probably it would have contented itself with a 'nip' with its mandibles, it now inflicts its sting, raises a cry by vibrating its wings while in the act, a strong odour of formic acid, a commotion amongst the bees, a dozen or more to the rescue, and a bad time to follow for the poor unfortunate operator. The greatest factor in successful manipulation is a cool head and steady nerves. The next is 'bee-quieters.' You first must be quiet, and then quiet the bees. I never used the carbolic cloth; I confess it freely without an apology. We have very recently heard what Dr. Bartrum has to say about it. I have heard a score good bee-men confess the same thing. My chief reason for not using it is example. I am 'godfather' to several bee-keepers who, I am certain, would taint their honey with carbolic if they used it, and use it they would if I only set them the example. My next is my reputation; it would not answer my purpose to sell one section with a suspicion of a taint of carbolic about it. The carbolic fumigator is all right under ordinary circumstances, but 'breathing' it on them fails to subdue them after extracting time, when robbers are more numerous than honest bees, wasps are on the alert, and many of the bees themselves are getting old, gouty, and cross. 'Apifuge' is a very useful article; the bees are sensitive to the taste and smell of it; but the last three or four weeks it has failed to intimidate them. It is still useful, as it helps to increase the confidence of many, and to touch a newly-stung spot with it helps to allay the pain and dispel the strong scent of formic acid.

There is nothing to beat smoke. I keep my smoker clean, see that the hole in the nozzle is large, and use brown paper for fuel. I use a coarse, rough kind, well dry, the fumes of which will make you cough if you happen to inhale them, and make the bees stop to clean their compound eyes and antennæ when a cloud of it has been puffed at them. I have long ceased to puff into the entrance, except in very special cases, but simply keep them down from the top until they are fully gorged. Give them time, and enough of it. The chief difficulty recently has been to get them gorged, mainly because there is little or no unsealed honey in the hives at which the bees can get to sip. Many of my combs, except a few cells at the bottom edge, are one slab of sealed stores; on such the bees refuse to cluster, preferring the walls and floor-board of the hives; other combs from which I have extracted are cleaned up and put tidy, and all the stores packed away and sealed over. The impossibility of getting bees to gorge with combs in such a state must be apparent to the merest tiro. Under ordinary circumstances manipulation would be at an end until early in October, when they would be packed and put into winter quarters, but during the past three weeks I have been introducing several queens, and consequently the old ones had to be caught and removed, and the young ones had to be examined to see that they were secure and laying. Of course, daytime and good light were necessary for all this. Robbers and wasps were a great nuisance; the guards were too strong for either to force an entrance in front, but while I have had one frame in my hands I have seen as many as three or four wasps enter the hive. But the point of most interest to you will be how to successfully gorge the bees. Here is my plan. Get some thin syrup, make it slightly warm, put it into a clean oil-feeder used for oiling machinery. If you upset the feeder it will not spill. If you have not one (they cost only one shilling), borrow the wife's teapot. Don't ask for it, but take it, and ask permission when you bring it back; it sometimes saves trouble and disappointment. Now lift the quilt just a little so as to expose not more than two bars, give a puff of smoke, and gently pour a little of the syrup along the edge of one of the combs, replace the quilt, and turn up the other side of it, and treat that side of the hive as you did the first. Use the syrup sparingly, as if you use too much it will run out at the entrance, and robbing will ensue at a pace to alarm you. While the bees are lapping up the syrup you have poured into the hive, give them a slight puff of smoke occasionally to keep them on the gorge, and to prevent them from storing it in the cells. Give them a little time, so that all may get their fill, and then proceed to uncover as usual, keeping the quilt over as much of the hive as you can, so as to keep out as many robbers as possible; and if you are not able to manipulate with greater comfort, it will be a matter of surprise to—AMATEUR EXPERT.

STATISTICS WANTED.

Mr. J. Bertram, author of the *The Harvest of the Sea*, is desirous, for literary purposes, to have information as to the honey-harvest of the past season. Will the secretaries of County Bee-keepers' Associations, and others, render him what assistance may be in their power by forwarding to us statistics of the honey-yield in their respective counties?

ASSOCIATIONS.

LANCASHIRE AND CHESHIRE BEE-KEEPERS' ASSOCIATION.

The annual exhibition of bees, hives, and honey, in connexion with the Royal Manchester, Liverpool, and North Lancashire Society, was held at Manchester on August 31st and three following days.

The weather was anything but what could have been desired for the occasion. From the first day of the show to the last there were heavy storms of wind and rain, and the manipulations with the bees had to be abandoned entirely on Friday, the continuous wind and rain rendering it quite impossible. The soil, being of clay, was worked up into a state of mud similar to that which most bee-keepers will recollect at Kilburn in 1879. Notwithstanding the weather, the tents containing the exhibits of hives and honey received a greater patronage than any other part of the show, although the visitors had to go through the sticky mud halfway up their boots; such was the interest taken in modern bee-keeping by the people of Lancashire and Cheshire. The honey exhibited was, taken as a whole, the best we have seen at any exhibition this year. It was bright and uniform in colour, of good consistency, and fully keeps up the credit of Lancashire and Cheshire obtained in the Counties' Competition held at the Colonial Exhibition last year, as one of the best honey-producing districts of England.

In the class 'for the best exhibition of honey from one apiary, in quantity not less than one hundredweight,' the second prize was given to Mr. W. Broughton Carr for an exhibit of 370 pounds of honey, placed on the same trophy as was used by the Lancashire and Cheshire Association at South Kensington. The honey was equal, if not superior, to that then staged. It now consisted of 265 one-pound glass bottles, 12 two-pound ditto, and 162 half-pound ditto. There were also 45 one-pound sections, which were not unpacked until after the judging. The first prize was awarded to Mr. Wood, of Lichfield, for 113 pound bottles, 55 half-pound ditto, 45 pound sections, and 6 two-pound sections, weighing 197 pounds altogether. We did not taste this honey, but in appearance it was cloudy and darker than that to which the second prize was awarded; and it is difficult to understand how the judges arrived at their decision, when, in addition to the weight, the appearance of that awarded second place was so superior. Considerable surprise, and we fear some dissatisfaction, was expressed at the award in this class. We have been told that the judges considered that there ought to have been some sections staged, and it was a pity, as Mr. W. Broughton Carr had forty-five pound sections there. This was not done, although the class simply says, 'For the best exhibition *of honey*,' not honey in the comb.

In the class 'For the best comb honey,' the sections of Mr. Wood, to which the first prize was awarded, were very good indeed, and well deserved their position.

For the best extracted honey there were twenty-one entries, all good in appearance and of good consistence, principally clover honey, with the exception of that of Mr. Woodley, which was awarded first prize, and that of Mr. J. M. Hooker, awarded fourth, both of which, we understand, were sainfoin honey, having quite a distinct flavour to clover.

There was no competition in the best and largest collection of hives. Messrs. Abbott had a large quantity of goods and were awarded a prize, which their large exhibit deserved.

In the class for the best and most complete hives we saw several old friends, but there was nothing new. There was nothing special in class for observatory hives.

In the class for new inventions Mr. James Lee exhibited his patent dovetailed system of hive, frame, and section construction. He also had two pairs of section crates containing his sections, one of which was invertible, being held together in a most secure, perfect manner, and not left to the uncertain support of a screw, as is the case of most crates of this kind. The other consists of hanging frames which will hold three $4\frac{1}{4} \times 4\frac{1}{4}$ sections or two sections $4\frac{1}{4} \times 6\frac{1}{2}$, or these frames can be filled with full sheets of foundation when working for extracted honey. This exhibit attracted more attention than anything in the show, the crates of sections all being claimed as soon as staged, and disappointment was expressed by many that they could not purchase them. The silver medal of the Lancashire and Cheshire Association was awarded to Mr. James Lee.

The following is a list of the awards:—

For the best and largest and most complete collection of hives and appliances: 1, Abbott Brothers, Southall. For the best and most complete frame-hive for general use in an apiary: 1, Abbott Brothers; 2, W. P. Meadows, Syston, Leicester. For the best and most complete storifying frame-hive: 1, Abbott Brothers; 2, A. F. Hutchings, St. Mary Cray, Kent. For the best observatory hive, to be exhibited stocked with bees (English or foreign) and their queen, all combs to be visible on both sides: 1, E. G. Parker, Bloomfield Lane, Altrincham; 2, John Nicholson, Vicarage Lane, Bowdon. For the best exhibition of honey from one apiary, in quantity not less than 1 cwt.: 1, H. Wood, Paradise, Lichfield; 2, W. Broughton Carr, Higher Bebington; 3, W. E. Little, Eastgate Row, Chester; H.C., William Wright, Partington, Cheshire. For the best comb honey in sections (from 12 to 20 lbs. in weight): 1, H. Wood; 2, William Woodley, World's End, Newbury, Berks; 3, H. T. Gibbs, Bebington, Cheshire. For the best extracted honey in glass jars (from 12 to 20 lbs. in weight): 1, William Woodley; 2, F. W. Durnsford, Frodsham, Cheshire; 3, Robert Dean, Mollington Hall, Chester; 4, John M. Hooker, 76 Tyrwhitt Road, St. John's, London, S.E.; 5, W. E. Little; 6, H. T. Gibbs. Novelties and useful inventions connected with bee-appliances: Silver medal, James Lee, 43 Glycena Road, Lavender Hill, London, S.W.

The exhibition was under the able and energetic management of Wm. Lees McClure, Esq., the Hon. Sec., assisted by our old friend and experienced bee-keeper, Wm. Broughton Carr, who presided in the bee-tent, lecturing from time to time and manipulating in a quiet and finished style, to the wonder and amazement of many.

The Judges were Dr. Walker, Mr. W. Carr, of Newton Heath, and Mr. Fred. Carr.

STAFFORDSHIRE BEE-KEEPERS' ASSOCIATION.

SHUGBOROUGH.

The Staffordshire Bee-keepers' Associations offered their silver and bronze medals for competition in connexion with special prizes for honey given by the Trent Valley Horticultural Society at the Annual Show of that Society, held at Shugborough on Monday, August 1st (Bank Holiday). The bee-tent of the Staffordshire B.K.A. was in attendance, where the modern system of driving and managing bees was illustrated at intervals during the day by Mr. A. W. Rollins, of Stourbridge, the Association's expert. The awards in the honey class were as follows:—Twenty-four sections of honey-comb: 1 and silver medal, Mr. H. Wood, Paradise, Lichfield; 2 and bronze medal, Mr. E. Clowes, Milton, Stoke-on-Trent.

STONE.

The Staffordshire Bee-keepers' Associations offered their silver and bronze medals for competition in connexion with special prizes given by the Stone Horticultural Society at the Annual Show of that Society, held at Darlaston Park, Stone, on Thursday, August 11th. The Rev. G. R. Bailey, of Madeley, Newcastle, officiated as judge, and the awards were as follows:—Twenty-four sections of honey-comb: 1 and silver medal, H. Wood,

Paradise, Lichfield; 2 and bronze medal, J. R. Critchlow, Maer, Newcastle. Stock bees exhibited in a straw skep: 1, J. R. Critchlow, Maer, Newcastle; 2, E. Clowes, Blackbrook, Newcastle. After the show had been thrown open to the public, the committee and judges adjourned to a separate tent, where luncheon was provided, and the Rev. G. R. Bailey being called upon to respond on behalf of the Staffordshire bee-keepers, he observed that the season opened well for bee-keepers, but unfortunately the long drought had marred the exhibition. Nevertheless, there had been some excellent honey shown, and he had experienced much difficulty in deciding between the produce of the first and second prize-takers and the 'highly commended.' The gentleman who had gained the first prize that day won the third prize at the Royal show a few weeks ago.

WILTS BEE-KEEPERS' ASSOCIATION.

The Wilts County Show was held on the lawn at Crane Lodge, Salisbury, in connexion with a bazaar in aid of the Diocesan 'Church House,' on August 16 and 17. Showers and a heavy thunderstorm prevented much work being done in the bee-tent, and the attendance was very small.

The funds of the Association being very low there was little to tempt manufacturers in the way of prizes, but there was a good display of remarkably fine honey staged on the stand which gained fifth prize last year at South Kensington. The silver medal of the Bee-keepers' Association (it will be seen by the prize list) fell this year to a cottager, and the judge had a difficult task in assigning the awards, the quality of the honey being so uniformly good, though the finish of the sections in many cases was below the mark.

The following is the prize list:—

Class I. For best bar-frame hive, complete, price not to exceed 1*l.* 1*s.*: A. D. Woodley, Reading, first-class certificate.—II. Best bar-frame hive, complete, price 15*s.*: A. D. Woodley, first-class certificate.—III. Best collection of bee furniture: Rev. W. E. Burkitt, first-class certificate.—IV. For new and useful inventions or articles made from honey: 1, W. Killick, Sandhurst, for wax extractor; 2, A. D. Woodley, for tin section boxes; 3, W. B. Webster, Binfield, for carbolic fumigator. (*N.B.*—In Classes I., II., III., IV., only certificates of merit were offered.)—HONEY (*open to members of W.B.K.A. only*): V. For best 12 lbs. in sections and 12 lbs. extracted honey: 1, J. Giles, Cowesfield (a cottager), silver medal of B.B.K.A.; 2, E. C. Snelgrove, Sutton Parva, certificate of W.B.K.A.; Rev. W. E. Burkitt, highly commended.—VI. For best twelve 1-lb. sections: 1, Rev. W. E. Burkitt, bronze medal, B.B.K.A.; 2, E. C. Snelgrove, first-class certificate of W.B.K.A.; 3, W. E. Brown, Stratford-sub-Castle, second-class certificate of W.B.K.A.—VII. Best 12 lbs. extracted honey; 1, Rev. W. E. Burkitt, certificate of B.B.K.A.; 2, E. C. Snelgrove, first-class certificate of W.B.K.A.; highly commended, Mr. A. Godding, Brimslade, second class certificate of W.B.K.A.—VIII. Best non-sectional super: 1, Mr. W. Hawkes, Newbury; 2 and 3, not awarded.—IX. Best beeswax, not less than 5 lbs.: 1, Mr. A. Godding; 2, E. C. Snelgrove; 3, Thomas Giles.—(*Open to cottagers only*): X. For best made straw skeps, 1, H. Huish, Watney, Devizes (price 1*s.* 9*d.*); 2 and 3, not awarded. HONEY.—XI. Best 12 lbs. in sections: 1, G. Newport, Oxenwood, a bar-frame hive stocked with bees, given by Rev. H. Trotter; 2, Thomas Giles, certificate of W.B.K.A.; 3, G. Newman, certificate of W.B.K.A.—XII. For the best non-sectional super of honey not less than 10 lbs. gross: No entry.—XIII. Best 12 lbs. extracted honey: 1, G. Newport, Killick's wax extractor; 2, Thomas Giles, certificate of W.B.K.A.; 3, G. Newman, certificate of W.B.K.A.—XIV. Best beeswax, not less than 5 lbs.: *N.B.*—Merged in Class IX., there not being enough entries in either alone.—XV. Best old stock of bees in skep: 1, G. Newman, a bar-frame hive worth 10*s.*; 2, Thomas Giles, 5*s.*

Rev. Dr. Bartrum was appointed judge by the B.B.K.A. He reported that he had never seen better cottagers' exhibits in the honey classes; adding, they would have done credit to any bee-master.

On August 19 the bee-tent, in charge of the Rev. W. E. Burkitt, formed a new feature at a Cottage-garden Show held at Purton, near Swindon. Here the weather was perfect and the attendance very satisfactory, and several new members will be secured.—W. E. BURKITT, *Hon. Sec.*

FORFAR BEE-KEEPERS' SOCIETY.

ANNUAL EXHIBITION.

The seventh annual exhibition of the Forfar Bee-keepers' Society took place in the Town Hall on Saturday, August 17th, and was by far the most successful, from every point of view, ever held by the Society, a new feature being a competition in industrial work open to Burgh School children.

The hall was visited by large numbers during the afternoon, and in the evening it was crowded. The exhibition was worthy of all the patronage bestowed upon it, and the Society are to be congratulated on its success. For the first time at the Society's show there was a good display of heather honey, both run and in comb. The sections were extremely good, fine in colour and well forward as to finish, and the early season alone has enabled the Society to have this class of honey at their show. The specimens of wax were all of very fine quality and colour. There were two nests of humble bees and two observatory hives to add to the attractions, and much curiosity was manifested by many of the visitors in endeavouring to single out the queen-bee in the observatories from amongst her numerous subjects. The following is the prize list:—

BEES, HONEY, &c.—Display of honey, the produce of one apiary, weight not under 40 lbs.:—1, A. Patullo; 2, W. Neave; 3, D. W. Soutar and J. Saddler, equal. Best set of sections, heather, under 16 lbs. (sections not over 2 lbs. each:—1, D. W. Soutar; 2, W. Black; 3, A. Patullo. Best eight 2-lb. sections:—1, D. W. Soutar; 2, A. Patullo; 3, W. Black. Best ten 1½-lb. sections:—1, D. W. Soutar; 2, A. Patullo; 3, D. Pearson. Best twelve 1-lb. sections, clover:—1, A. Patullo; 2, Dr. Kydd; 3, A. L. Fenton. Best single super, in wood or glass, or both:—1, A. Patullo; 2, A. Stewart; 3, Dr. Kydd. Best straw super, clover:—1, Jas. Whitton; 2, W. Neave; 3, A. Rennie, sen. Best straw super, heather:—1, A. Patullo. Best 6 lbs. run-honey in show glass, clover:—1, J. Saddler; 2, A. Stewart; 3, K. Skeene; 4, D. Pearson. Best 6 lbs. run-honey in show glass, heather:—1, A. Patullo; 2, W. Neave; 3, D. W. Soutar. Best 6 lbs. run-honey in show glass:—1, A Sturrock; 2, T. Michie; 3, W. Black. Best display of run-honey in 1-lb., and, or, 2-lb. jars, weight not under 10 lbs. nor over 15 lbs.;—1, A. L. Fenton; 2, A. Rennie, jun.; 3, A. Stewart. Best 2 lbs. wax:—1, A. Patullo; 2, A. L. Fenton; 3, J. Saddler. Best observatory hive:—1, J. Saddler; 2, D. W. Soutar. Bar-frame hive:—1, D. S. Cuthbert; 2, J. Herald, jun. Humble bees:—1, J. Dorward; 2, J. Herald.

Much praise is due to the Secretary, Mr. James Saddler, High Street, Forfar, for his management of the show, and for his energy in the conduct of the affairs of the Society.

FLORAL AND HORTICULTURAL EXHIBITION AT AMBLESIDE.

The honey show in connexion with the Hawkshead and district Bee-keepers' Association was held in the ante-rooms of the Pavilion on Wednesday, and much interest was manifested in the product of the busy bees by the numerous visitors who paid a visit thereto. The entries this year were a more numerous and better class. The number of entries in the schedule were fifty-one, against about forty last year, though all the entries were

not forthcoming. Mr. Jas. Wrigley, junior, of Holbeck, was the judge. The awards were as follows:—

Honey.—A: Super of honey, the super to be of wood, glass, straw, or wood in combination with glass or straw—1, I. Postlethwaite, 15*s.*; 2, J. Robinson, 12*s.* 6*d.*; 3, W. Carter, 7*s.* 6*d.* B: Bar or bar-framed super, to contain not less than five combs—1, W. D. Heelis, 15*s.*; 2, Jas. Postlethwaite, 12*s.* 6*d.*; 3, J. Rogerson, 7*s.* 6*d.*: highly commended, B. Townson. C: Twelve 1 lb. sections—1, J. N. Fell, 15*s.*; 2, T. Bell, 10*s.*; 3, Mrs. T. Walker (Cunsey), 5*s.* D: Three 1 lb. sections—1, J. N. Fell, 10*s.*; 2, Miss Fell, 5*s.*; 3, J. N. Fell, 2*s.* 6*d.*; highly commended, Alf. Horrax and Jas. Postlethwaite. E: Six 1½ lb. sections—1, Jas. Postlethwaite, 15*s.*; 2, Isaac Postlethwaite, 10*s.* F: Straw-hive of honey, not being a super—2, John Burrow, 5*s.*

CRAVEN AGRICULTURAL SHOW.

Bee-keeping in the Craven district of the West Riding of Yorkshire has made rapid strides during the present year, and the increased interest in the subject was further extended by an exhibition of honey, bees, and appliances, which took place at the Craven Agricultural Society's show, held at Shipton on Friday last, August 26th. Early in the present year it was felt desirable by several local bee-keepers that a local branch of the Yorkshire County Bee-keepers' Association should be formed in the district. Mr. James Dodgson, who was a member of the Association, took the matter in hand, and induced the County Association to countenance a branch for Craven, as the district was too remote to be worked from headquarters. He then called a meeting, which was held at Shipton in March, and it was unanimously decided to form such an Association for the Craven district. The Rev. A. P. Howes, of The Rectory, Bolton Abbey, was appointed President, and Mr. James Dodgson Honorary Secretary. Since then, under the able management of Mr. Dodgson, the branch has made rapid strides, and has done much good work, the number of members now exceeding twenty.

It was by reason of the representations of the branch that the Craven Agricultural Society were induced to offer prizes for honey and bee appliances this year, and being an entirely new thing in the district, the exhibition attracted more than usual attention from the public. Prizes were offered for run or extracted honey, for honeycomb, and for the best collection of bee appliances, and the competition in each of the three classes was much more keen than was anticipated. The judges were the Rev. A. P. Howes, The Rectory, Bolton Abbey, and the Rev. J. Kemble, The Vicarage, Coniston Cold.

There were fifteen entries in the three classes, including a very well-arranged collection of hives and appliances shown by Mr. W. Dixon, of Leeds. Mr. Dixon deservedly took first prize in this class, and also in the class for extracted honey. He also took first in the class for sections, although our correspondent thought that those shown by Mr. John Grundage, of Cononly, were better filled.

The exhibits were very tastefully arranged on the field, and were visited by crowds of people throughout the day. The success of the venture must have been very gratifying to Mr. Dodgson and the others who had laboured so assiduously.

A variety of manipulations, such as bee-driving, &c., took place in a tent during the show, Mr. T. H. Varley, of Addingham, undertaking the driving, &c., and Mr. Dodgson and others gave explanatory lectures at intervals.

Altogether the exhibition was a great success, and will doubtless lead to a considerable extension next year. The following was the prize list:—

Best comb honey in sections—1, W. Dixon, Leeds; 2, T. H. Varley, Addingham. Best twelve glass jars of extracted honey—1, W. Dixon, Leeds; 2, S. Metcalfe, Carleton. Best collection of hives and appliances—1, W. Dixon, Leeds; 2, A. C. Jemeison, York.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. Huckle, *Kings Langley, Herts* (*see 2nd page of Advertisements*).

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

RE FOUL BROOD.

[1227.] I am very glad to find that Mr. S. Simmins has acted on my advice (given twelve months ago), and after practical experience he is able to confirm my statement, viz., that in order to render the 'Cheshire' cure certain in its effects it is necessary to remove the diseased queen and substitute a healthy one. This, he now states, will '*never fail*' to effect a cure, and will prove effectual in '*every case*.' Such confirmation coming from one so well qualified to give it is highly gratifying to me, and I sincerely hope it will not be passed over by those who are afflicted with the foul-brood disease.

The advice, which I have given on several occasions in the *Journal*, is founded on a long and painful experience, dating as far back as 1869, and is the result of numberless experimental efforts. I laboured from 1869 to 1876 to overcome the disease, which was imported into my apiary by a stock of Ligurians supplied to me by the late Mr. Woodbury, of Exeter, but at the end of that time it overcame me, for I had to destroy the remnants of thirty-two stocks, which had been from time to time recruited with healthy swarms from six different counties. I tried every system advocated at that time, but never once succeeded in destroying it, and at last I destroyed every particle of bee-furniture, combs, and bees, and gave up bee-keeping for two years.

I started again in 1878 with two healthy stocks, from which in 1885 I possessed twenty-two, when the disease again made its appearance, and when discovered it had already attacked five hives. Well, at this time, and as a result of my own observations, I had an idea that the whole difficulty rested with the queen—although the advice given in the *Journal* was on no account to remove the queen, but stimulate her to renewed exertions by feeding—so I began operations by removing four of the queens from the affected hives and substituting healthy ones; at the same time I placed a bottle of medicated syrup (of the Cheshire quality) on every hive in the apiary. I also sprayed the combs in all the five diseased stocks from time to time, and the four with healthy queens soon recovered and became free from any trace of the disease, but the fifth grew worse under the same treatment; so to prove my theory I removed this queen also, and placed her in a strong, healthy stock, *which speedily became a mass of corruption*, while that from which she had been taken yielded to the 'cure.' I again repeated this operation with a like result. At last I destroyed her too, and speedily all my stocks became healthy and strong under the Cheshire treatment. I noticed that from the time I began feeding with phenolated syrup the disease never spread beyond the five stocks originally attacked, although the whole twenty-two are confined to a space of forty feet square. But I went beyond this, for I placed some medicated syrup in a number of combs taken out of the diseased hives, and allowed the whole apiary to help themselves freely, to the extent of 60 lbs. weight of sugar syrup, and I have not been able to discover a single trace of the disease since.

I also placed ten badly diseased combs in an empty

hive after spraying them with phenol syrup, and placed a natural swarm in this hive, fed it liberally with the same syrup, to the extent of 25 lbs., and they are now perfectly healthy, thus proving to my own satisfaction that the only reliable plan of curing the disease was a timely removal of the queen and the substitution of a healthy queen, which, as Mr. Simmins points out, is really the exact process described by Mr. Cheshire in the account which that gentleman gave of his discovery to the British Bee-keepers' Association, in 1884.

It is true he also described how after inoculating several healthy stocks and adding to others diseased combs of a disgusting nature, and after the disease had got ahead, he quickly destroyed it and made the stocks perfectly sound again; but in none of these cases is it shown that the queen was diseased—and herein lies the pith of the subject.

In August, 1884, Mr. Cheshire wrote:—

'Bacillus alvei is now understood and its method of treatment made so easy that he who suffers from it badly will in the near future rather deserve censure than pity.

'Some, sad over losses and rampant disease, with Job's comforters calling to them to burn their hives and burn their combs, and kill their queens, and start anew, will, I trust, soon be thankful and cheerful in learning that my method will save everything *with the sole exception arising from the infection of the queen.* In any case in which this may be suspected, and the queen replaced by a second, the removed one would be a treasure to me for dissection purposes.'

So that Mr. C. never expected that phenol would cure the disease if the queen was in fault.

And again he wrote, November 15th, 1884, when two failures of his cure were reported:—

'With regard to Mr. Johnston, I can only say that he may, or may not, have acted as I describe, for I am totally ignorant of what Mr. Blow provides and what advice he gives; but "Questioner" *may have a diseased queen.*'

And although Mr. Hart (page 379 of the *Journal*), under date November 1st, 1884, gave an account of *three perfect cures* simply by removing the queen and substituting a healthy one, Mr. Cheshire never seems to have realised the importance and necessity for this, and never seems to have made it a *sine quâ non* of his cure—although he seems to have known it—and consequently, here we are, after four years with a perfect remedy in our hands, still struggling with the disease, while it is ever destroying and spreading from one part of the country to another, simply and solely because we *will not* use the remedy properly. Why, there has never been a case reported of failure with the Cheshire cure after removing the queen and substituting a healthy one! And yet bee-keepers are still asking in utter despair, What *shall* we do to be free from disease?

We cannot tell (when a stock is diseased) at what stage the queen is attacked, or indeed whether she is attacked at all; a stock may be for a considerable time diseased, and yet the queen may be free, in which case the phenol will surely cure it, and this will account for some cures being reported by the phenolated syrup alone; but by far the greater number of reported cases are failures, hence we are driven to the conclusion that there are two distinct conditions of a diseased stock—first, that in which the disease has attacked the brood alone, and probably some of the bees too; and second, that in which the bacilli have entered into the organs of the queen. Therefore it is obvious that the first step to a certain and sure cure is to *remove the queen* and immediately spray the combs, so that in introducing the healthy successor there shall be no risk of her contamination—because the vapour of phenol alone will destroy the disease, and every bee in the hive is dosed by licking the syrup from the combs, so that (in the words of Mr. Simmins) here is health and life to start with. Of course it is a mistake to suppose that the disease yields to the treatment as quickly as would appear from these notes; and a little patience is necessary to go over the combs carefully at intervals of about two weeks, spraying wherever a few cells appear to be tainted. But if this is done, the disease can with ease and certainty be effectually stamped out.

I believe that when the queen is attacked no amount of phenol will cure her without killing her. I have repeatedly shaken all the bees from a diseased stock into an empty box and kept them without food for forty-eight hours and longer, then shaken them out again into another new and empty box and fed liberally with phenol, and also with salicylic syrup, and the first batch of brood from the pure white comb has always been badly diseased, and after repeating this operation with the same bees the result has been the same; and other bee-keepers have done likewise. I am aware that many cases have been reported where the disease has been destroyed, or died out, under the Cheshire treatment without destroying or removing the queen; but apart from the chance of the queen being healthy, in none of these has it been proved that the old queen survived; and as the phenol will undoubtedly destroy the disease in the brood (for many healthy young bees are hatched from a diseased queen while under treatment) it is probable that a young queen has replaced the old one in some of those cases. I know that this is raising a most difficult problem, but I suspect it will ultimately be found that the *grafting of the drone* on the queen has something to do with the case, and like friend Simmins I also anxiously await more light from our esteemed friend Cheshire.—THOS. F. WARD, *Church House, Highgate, Middlesex, August 27th.*

P.S.—Next spring I intend to try queen-rearing from a diseased mother. I think it will throw light on the subject.

[Mr. Ward is very desirous that we should give insertion to his formula. We have much pleasure in acceding to his request, and we would bespeak the best attention of bee-keepers thereto. We print in full Mr. Cheshire's directions for using his solution.—ED.]

CURE FOR FOUL BROOD.

Destroy the queen, and substitute a healthy one, then use the Cheshire remedy:—

'Completely empty the bottle of remedy into a measured pint of water. Stir or shake until all oily deposit has disappeared, using nothing that is not perfectly clean. Rinse the bottle and keep it as a measure. Empty the fluid made into another bottle of sufficient size, carefully cork it, and label it "Foul-brood Solution."

'Reduce your infected stock to the number of frames it can use, putting those removed on the other side of the dummy, and feed the bees daily with a syrup prepared in the usual way with about 3 lbs. of sugar to a quart of water, and medicated thus:—After the syrup is cooled, to each pint of it, as required, add one small bottleful (the measure) of foul-brood solution, and shake up. Give this syrup by pouring it into the empty cells of the brood-nest, and encourage breeding as much as possible by warm covering and attention. By no means remove the queen from the stock, except upon the ground that she is herself badly infected, when she should, if possible, be immediately replaced by a healthy mother.

'In early spring and late autumn, when little or no honey is coming in, this amount of foul-brood solution will be sufficient for a pint and a half of syrup, and bees may take this from the food bottle in the ordinary way; but if they refuse to do so, it must be poured into their combs. In wintering up, give medicated cake, made in the ordinary manner; but into every 3 lbs. of which has been carefully stirred during its thickening whilst cooling, one measure (the small bottleful) of "Foul-brood Solution."

'The combs remaining at the back of the dummy during treatment of a severe case will probably smell badly; if so, spray them with water to each ½ pint of which one small bottle of foul-brood solution has been added; but on no

account spray the combs the bees are using; add these combs to the stock one by one as the bees increase in numbers, and while they are being added, continue the treatment. Take as far as practicable honey from the bees, and this honey thinned and medicated may be used instead of syrup. It may hasten the cure to uncap the bad cells, but it is not necessary. The worst cases, if there be only bees sufficient to raise brood, will soon yield to this treatment.—F. R. CHESHIRE.'

FOUL BROOD AGAIN.

[1228.] Friend 'Ward' wants to know how I have fared this year with the dire pest. I am happy to say that I have not got so much of it as I had last year at this time, but still too much. I cannot agree to the advice he has given to 'West Kent' as a means of curing foul brood, because I have tried it and found it useless; as soon as you put another queen into the hive it will soon be as bad as ever, even supposing you do use a tonic in your food and give them plenty of disinfectant outside. My advice to him would be to get another hive, put half sheets of comb-foundation in the bars, remove the old hive, and place this one at the same spot. Then examine the old hive and find the bar containing the queen, shake the bees down in front of the new hive and let them run in (having previously put a board sloping up to the entrance), when you have safely seen the queen go in, serve the other bars the same, and then if honey is not coming in freely feed them slowly with syrup containing salicylic acid. I have not tried phenol since last year, but I believe in salicylic as a preventative, but not as a cure unless you destroy your combs. I don't believe in the germ theory and that the queen lays diseased eggs, and I will tell you the reason why presently.

Now for my experience of foul brood this year. I examined the whole of my hives on the 10th of March and found they did not want feeding, and no appearance of foul brood visible then. Did not open the hives again until the 12th of April. I then commenced to feed a few of my hives—what I shall call No. 1 being one of them. This hive had about 5 lbs. of medicated syrup during the month of April. On the 8th of May the bees in this hive began to throw out dead drone grubs; and as I had given them another bottle of food on the 6th I was rather puzzled to know the cause of it, as this was one of my best hives last year and I knew it to contain a young queen. I opened the hive on the 9th, and judge of my surprise to find foul brood was the cause. Having a clean hive by me I decided to turn the bees into it, and destroy the old combs and disinfect the hive for future use. This was done on the 12th, and I have not seen any foul brood in that hive yet, and I have examined it very carefully several times since, especially on the 17th of this present month, August. It had about 5 lbs. more syrup after the change. I then put a crate of twenty-one sections upon it on the 16th of June, but they did but very little to them. I have taken about 10 lbs. of honey from the body of the hive and shall give it a few lbs. of syrup in exchange—medicated, of course. Having a queenless hive I thought I would try and see how much of the brood these foul-broody bars would hatch out, and I don't believe that five per cent hatched out, so you may guess that it was rather bad—where is the germ theory in this case?

Now for No. 2. This hive had about 6 lbs. of medicated syrup between the 2nd of May and the 6th of June, but it had then got foul brood so bad that I then served it the same as No. 1, and I have not seen any foul brood in the present hive, and I have given it a good over-hauling, the same as No. 1—in this case I at once destroyed the remaining brood by fumigating it with brimstone.

Now for No. 3. This hive I found queenless on the 25th of July, 1886. I gave it a frame of brood taken from No. 2, from which they raised a queen and she was laying freely in September, as I was feeding it to induce her to lay, and it went into winter quarters well provided with young bees and a good stock of medicated syrup sealed up.

I did not begin to feed this hive until the 2nd of May, as it had got plenty of sealed food. As it was not increasing in bees so fast as I wished, I put a feeder upon it, and it had about 8 lbs. of syrup during the month of May and a crate of sections on the 10th of June. As they did not go to work in the sections and got weaker in bees, and knowing that the frame of brood from which this queen was raised was taken out of No. 2 hive, I suspected foul brood was the cause, which turned out to be true. On the 16th of July I served this hive the same as the other two, putting the bees into a makeshift hive upon half-sheets of foundation. On the 4th of August I transferred them into a regular hive, and the brood then was as clean as ever I wish to see any, and they had had nothing only what they had collected outside the hive. I have since been feeding them upon medicated syrup. I gave it a thorough examination on the 17th of August and still no signs of foul brood, but the young bees are getting quite strong.

Now for the only hive that I know to contain foul brood. This hive was made up of condemned bees on the 13th of September, 1886, and put on combs that had been taken out of foul-broody hives, and, as I thought, had been thoroughly disinfected, both by fumigation by brimstone and being washed over with carbolic acid. I thought it looked a pity to destroy them as they were sheets of foundation barely worked out, they were fed on syrup containing salicylic acid. And as it contained a young queen it gained upon some of the other hives at a rapid rate, and had a crate of sections put upon it on the 16th of June and started working in them at once, and then decreased in bees as rapidly as they had got strong just previously. That the bees were not affected with foul brood when put into the hive, I feel certain, as they came from a district where it is not known. The only way that I can account for their getting the disease, is from the pollen stowed in the combs, as there was but very little honey in them, any one that has had foul brood must have noticed the large amount of pollen stored in them. And it is my firm belief that it is almost impossible to disinfect it. And I have made up my mind to destroy all combs that have the slightest suspicion of being affected. This hive will be served the same as the others have been at the first opportunity. I am still of the same opinion as I was last year, that straw hives do not have foul brood the same as bar-frames do. I could mention several instances that have come to my knowledge this season of their missing it, and bar-frame hives being eaten up by the pest not a hundred yards apart. I do not write this because I am a skeppist, as I have not got a single lot of bees in a skep. I believe foul brood will knock the bee fever out of any one but a downright enthusiast.

I think Mr. Simmins has given a very good explanation of the reason of Mr. Cheshire being able to cure his hive of all dire pest, although I cannot agree with him as regards the queens. Another thing, he says, Be careful not to contaminate the extractor, and so say I, as I sometimes think that that was the means of my getting the disease, the extractor having been used in an infected district.

And now, Mr. Editor, a few words and I have done for this time. Have any of your readers ever tried camphor as a cure for foul brood or as a preventative of robbing, as it is so often recommended in the *Journal*, because I think if ever any one gave camphor a fair trial I did last year; and didn't my bees rob,—I rather fancy they did, and I let several lots die out with plenty of camphor in the hive. I should like

for John Hounson, when he sees this article, to give his present experience of camphor as a cure of foul brood, as he once wrote saying that he had cured a hive with it.—MAN OF KENT, *August* 30.

BACILLUS MINOR.

[1229.] Whilst tendering my thanks for your advice on this subject in the *Journal* of 25th ult. I am sorry to say both the young queens raised from the affected swarm are now similarly diseased. The brood in each case showing the ominous dead grubs, of which I am certain many have been capped over and been since unsealed by the bees, as they exist in all stages. Some, apparently fifteen or sixteen days old, are partly uncapped, though not discoloured. Others again, more developed than at eight days old, appearing, as Mr. Simmins says, 'like a white cinder,' and at the bottom of the cell as though a bee had packed it down like pollen.

If this disease and the dead brood of which Mr. Simmins writes are the same, it clearly is not very contagious, or his apiary would have been decimated long ago.

In my case all traces of infected comb and brood were removed before the young queens began to lay, thus seeming to class the disease as congenital. This brings up the question as to whether disinfection of hives and frames is necessary. How should it be done if neither phenol nor salicylic acid are able to cure the disease? I am in doubt how to treat the two affected lots—whether to brimstone them like the original swarm, or unite and give a healthy queen. Driven bees are so cheap now that it seems a pity to risk anything. The smallest editorial advice will be thankfully received by —B.

[The result is what we feared. If the case were our own we should cremate both colonies and all belonging to them—hives, quilts, &c. At this late season cure is very doubtful. If you wish to experiment we should say add a strong lot of driven bees to each colony and feed copiously on phenolised syrup. One of our own diseased colonies is now rapidly improving under the Cheshire treatment.—ED.]

'BIRDS, REPTILES, AND BEES.'

[1230.] With respect to Mr. Webster's remarks on 'Birds, Reptiles, and Bees' (1202), p. 370, I can fully corroborate his opinion that swallows and martins are not destructive to bees. My apiary is situated near the house, and the buildings adjoining afford splendid opportunity for chimney swallows and house martins to build their nests, especially the latter. Before I commenced bee-keeping, a few years ago, the martins seemed to take a particular fancy to the whole building, and nests increased year by year, until they were almost looked upon as a nuisance, and many muddy tenements were ruthlessly destroyed, yet not without a touch of inward sorrow. My colonies of course increased in due time, and doubts and fears filled my mind as to the possible destruction of some hundreds, I might have imagined thousands, of my little winged pets. The bees, however, soon proved themselves masters of the situation, and instead of being chased and devoured by the feathered tribe the tables were turned. The martins were attacked, and followed by sometimes five or six bees at a time until lost to view. I was unable to prove that the bees overtook and stung the martins, but the latter, finding their quarters not quite so peaceful and comfortable as they anticipated, quietly but gradually deserted the place. It is now a rare thing to find a martin building its nest, unless in some remote part of the building entirely away from the hives. As a matter of fact, no nest has been completed this year or last. Starlings have, however, for the first time bred this year, but on the opposite side of the building to that occupied by the bees, and neither appeared to have interfered with the other. About three years since, in the month of October I believe, my wife and self watched two tits fly from the trees to a convenient perch just in front of the hives, then suddenly swoop down on the ground, and in an instant pick up a dead bee, and as quickly fly away about fifteen yards to devour the parts most palatable. This was repeated several times, and indeed they were quite welcome to carcases, but in no instance were live bees enticed from their hives and caught.

Now, a word for the toads. These have oftentimes been captured for the purpose of ridding the garden of insects, and snug little retreats placed for them to hide in, and I have actually put them in front of the hives and watched for any depredations, but failed. Perhaps they were not hungry, or shy. Others may record quite different experiences, but on reading the *Journal* I could not help being struck with the similarity of Mr. Webster's observations and my own.—A. G. F., *Denham, Bucks.*

REPLY TO DR. C. C. MILLER. [1214.]

[1231.] I am extremely sorry to have placed anything on record about the Doctor's practice that is not correct. As to the 'honey-board and queen-excluder,' from what our Canadian friends had shown us last year, and from what I have read about them in Transatlantic bee journals, associated with the worthy names of Heddon, Dr. Tinker, and G. M. Doolittle, I was under the impression the Heddon honey-board was always fitted with strips of excluder-zinc in the $\frac{3}{8}$" spaces, and so mentioned Dr. Miller as using it amongst others, knowing it would be of interest to British bee-keepers to know who uses a queen-excluder and who does not. Dr. Miller will readily see, I am sure, how easily I slipped into that error. But this usage in America is amongst the minute points, of which there are many, that we hope to be able to inquire about when the *chief* comes home.

As to removing middle sections, I 'own up' and beg pardon. I have nothing to say except that I am a big dunce. The fact was, it was done late, after a hot, tiring day. I was anxious to get it off by that post to be in time for that number of the *British Bee Journal*, and had to abbreviate it twice to compress it into a space sufficiently small for me to hope our sub-chief would be able to find room for it. I wish my *confrères* would have read it *in extenso*. But all this is a lame excuse for slovenliness.

It may interest the Doctor to know the practice of removing sections I attributed to him is what I follow myself. With regard to the incident, I am like the fellow who, when told his wife had recently died, said he 'was glad and sorry both.' I am sorry, as I have already said, but I will rejoice if the Doctor, having once broken the ice, may be induced to do so often, for the sake of good fellowship. He would have thought 'we be brethren' had he seen the thousands of the 'Stars and Stripes' that floated all over our dear old land during the Jubilee side by side with our own dear old flag

> 'That has braved for a thousand years
> The battle and the breeze.'

Dr. Miller's last word is pathetic—'Drouth'—he has my sincerest sympathy. I hope next season he will have a rattling good crop, get a good price for it, be able to enjoy a good long holiday with the money, and come and pay British bee-keepers a visit. How does this suggestion suit you, Doctor?—AMATEUR EXPERT.

INOCULATION, ETC.

[1232.] 'C. A. M.,' in his letter, No. 1222, says that the alleged inoculation is a delusion, basing his con-

clusion, apparently, on the very untenable ground that he has been stung on the average twice a-day during the last three months. For the information of 'C. A. M.' allow me to tell him that I have, during the last eight years, had a larger average number of stings than he mentions, but it is only in the last two years that I have been completely inoculated, and all I now feel when stung is a similar sensation to that of a needle just pricking the skin. 'C. A. M.' cannot surely be in earnest about the 30,000 stings, for it seems to me no ordinary person could escape serious consequences from receiving that number at one time. Your correspondent also says that he does not see the use of wired foundation; but having used, experimentally, one hundred frames this summer, and found them of very great advantage, I shall in future always use it.

In regard to the best time for manipulation, it is undoubtedly preferable to do so during the honey season while the old bees are away, as it can usually be done then without the aid of a veil; but at this season of the year it is almost imperative to do it either in the morning or evening, or robbing is sure to be the result. I have tried the use of Webster's fumigator this season, and can speak very favourably of it, but as the autumn advances I find nothing to equal the spray diffuser.—J. T. Harveyson, *Finchley, September 3rd.*

HONEY BY THE HUNDREDWEIGHT. (1206.)

[1233.] R. R. Godfrey's Lincolnshire must be a wonderful county for honey. I have kept bees for over twenty years, but have never realised more than half a hundredweight from one hive, while a dozen others did little or nothing. I have laid out over 50*l.* in my apiary for about eighty stocks. Last year I wintered thirty-two. One died, leaving brood sealed and about 15 lbs. of honey; three others lost their queens, all being young queens; three others I had to destroy, having what is described in the *B. B. J.* as *Bacillus minor*. This left me with only twenty-five stocks. I have made up the original number by swarms, and taken about one hundred and fifty 1-lb. sections and extracted about one hundred lbs. beside, which if I sell at present prices of 6*d.* for sections and 5*d.* per lb. extracted, will just bring me about 5*l.* 17*s.* Then I must pay carriage and risk all damage. I have devoted one half of my time to my bees, and had to purchase sections, frames, foundations, &c., which involved an outlay of about 4*l.* I have then left about 1*l.* 17*s.* for my time, &c.

Now the question is 'Does bee-farming pay?' From my experience I think it does not. If we may judge from the last twelve months' decline in the price of honey, it will be much lower in another year. 'Why does it not pay, and why are prices so low?' Doubtless one reason is because we have what I call a 'honey ring,' or the middle man of capital, who, like the corn-factor, stands between the producer and consumer, taking the lion's share of the profits without much labour. This may be clearly seen by reference to the British Honey Company's Report (annual) which appeared in this *Journal* a few weeks since, where they netted a profit of over 40 per cent. Then add to that the working expenses of the company, such as rent, gas, stationery, clerk's salary, &c., it would probably make another 20 or 30 per cent on the outlay, which might to a large extent go into the pockets of bee-keepers, if Bee-keepers' Associations were efficiently organised for the benefit of its members. We have our county B. K. A. and our parent British B. K. A., but I ask (at the present time) what practical benefit are any of them to bee-keepers generally, whether members or non-members. I have been a member for years, but I receive no benefit in any way. We have splendid machinery if it was properly worked. All our county associations are affiliated with the parent society; how easy would it be, therefore, for the parent society to engage a good business man for two or three months at this season of the year, at salary and commission, to work London and some of our large towns, taking orders from grocers and others who come directly into contact with the consumer, thus cutting off the middle man—the great evil, or curse, of the English producer. Members of all Associations would be glad to pay double their subscriptions if they could only be thus benefited. Orders could be sent direct to county secretaries nearest to where the orders are obtained, or to the parent society, whose secretary, for a certain consideration, would send on the orders to their members, who, in order to avail themselves of such benefits, should in good time send in to their secretary the amount of honey they have for disposal, then such member could send off his honey direct to the house as required, thus bringing the consumer and producer into more immediate contact. Of course there are minor details to be worked out, which can be very easily done when confronted by such practical benefit. I hope some others will be interested in this scheme, and will endeavour to move the 'powers that be' in this or a similar direction.—Sherborne, *Dorset*.

BUMPING A SUCCESS.

[1234.] Could you spare me space in your valuable *Journal* to relate my first experience in bumping? A friend of mine at Sunbury invited me to drive his bees, and as I was told that he usually smothered them I accepted the invitation readily. He had thirteen stocks, six of which were this year's swarms. I arrived at Sunbury about 2.30 p.m. and found all the skeps on a single stand about four inches apart and wasps flying in and out without much opposition. The wind being rather high I found a quiet, sheltered corner, made a table of a couple of old wheelbarrows and laid all my appliances near at hand. I set to work by smoking a three-year-old stock and carrying it to my impromptu table, and as I was desirous of reserving the queen I commenced by driving—an operation that took me about twenty-five minutes. I next carried the bees to their original stand, and for practice bumped the skep with the combs. Each comb broke off beautifully, close up to the crown, and brushing off the remaining stragglers I carried the honey into the house. The next stock I did not drive at all, but bumped it at once after removing the pieces of wood that were fixed across the combs. Again I had the pleasure of seeing every comb break off close to the crown. This hive only took me ten minutes.

After this I bumped three more; one an old stock and two this year's swarms. Each one took on the average about twenty minutes. I had most trouble with the swarms, the combs being so tender, and even breaking while I brushed the bees off; but hardly any were smothered by the running honey, as all the combs when bumped broke off likewise close to the crown.

When the bees had all clustered (a performance which I greatly helped by sprinkling the floor-boards with some weak carbolic acid solution) I united two lots by throwing them both into one skep and from thence into my boxes (14 × 9 × 8½ inches inside measurement), which I had prepared and brought with me; then tied them down with canvas and carried them safely home.

I should like to mention that the only instructions which I followed were those given in an excellent article in the *Journal* of August 18, and I would recommend them to any bee-keeper about to try bumping, feeling sure that if he would follow the instructions as closely as I did he would derive the same satisfaction and be as thankful as—Dulwich Novice.

BUMPING A FAILURE.

[1235.] I cannot make 'bumping' answer. Last year I gave it a trial on a rather warm evening; after turning a skep up and carrying it a little way from the

stand I gave it a couple of bumps, which completely broke the combs away from the skep. Then commenced my troubles. The combs were heavy with honey and so soft that they would hardly bear lifting, to say nothing about being covered with bees.

One piece after another was taken out, and the bees swept into an empty skep, but most of them returned and settled in the bumped one, making as pretty a mess of bees and honey in the crown of the skep as any one could wish to see. The result of the whole performance was that I had wasted more time in clearing the bees out of the skep than would have sufficed for drumming two, got plenty of stings by crushing the bees in handling the combs, and thoroughly roused the occupants of ten other skeps, besides losing half the bees. I drummed the remaining five hives.

This season I tried it again, and with almost worse results; the queen and a lot of bees were bumped (crushed) to death. Will some one who is successful with humping kindly say how the combs and bees are to be handled without the prospect of being stung and losing part of the bees? We were drumming during the thunderstorm mentioned in 1221, we found the bees just about mad,—and so did the pony.—CANTERBURIAN.

[Please refer to previous communication, and read over again our articles on 'Condemned Bees' in Nos. for August 4 and 11.—ED.]

WASPS.

[1236.] Very few queen-wasps visible in the spring, but great numbers of wasps on the wing now. I catch quantities in wide-mouthed bottles (Eno's fruit-salt bottles) suspended at the back of my hives, and one-third filled with a thin mixture of treacle and water—bees never go near it, it is too coarse food for them, I suppose.—BEESWING.

WASPS AGAIN.

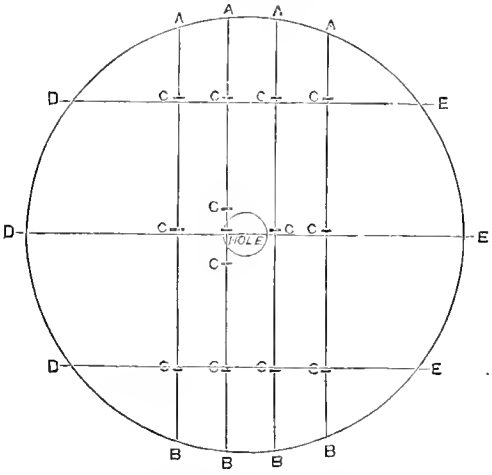
[1237.] 'W. M.,' 1207, page 373, says, among other strange things, that 'wasps are as valuable as bees.' Perhaps he keeps an 'apiary' of wasps. May I ask him to kindly favour the readers of your valuable *Journal* with a *balance-sheet* of his net profits arising from them and also from his bees, *i.e.*, the same number of each, 'hives and nests?' I find wasps very troublesome in my apiary—never found them so numerous in my bee-house. At this moment he may see about a quart of those (to me) good-for-nothing pests lying in a heap, which I have killed in one week. 'W. M.' says they do not hurt bees. Then my experience is a great mistake, for I have seen wasps get on one corner of the alighting-board and watch for an opportunity, then pounce upon a bee. A tuzzle ensues, both falling on the ground; in an instant the wasp is up again in the same place, and repeats the same thing, but the bee never rose again. This went on for a considerable time, when I had to leave them for a week. I narrowed the entrance as much as possible, which was all I could do; but when I returned there was not a bee left, and the honey nearly all gone, the wasps being in possession of what was a moderately strong colony and stores to have kept them through the winter. 'W. M.': Did the wasps destroy the colony—or what?—M. A. S.

HONEY DEW AND FOREIGN BEES.

[1238.] I have seen the statement once or twice in the *B. B. J.*, that foreign races of bees do not gather honey-dew, and shall be glad to know if other bee-keepers have found this to be true; for I purchased a stock of pure Ligurians three years ago, and they brought in a great quantity of honey-dew; now my bees are all hybrids, and they all bring in honey-dew. I should be very grateful if any one will tell me how to avoid the nuisance.—BEESWING.

FASTENING FOUNDATION IN SKEPS.

[1239.] It is rather difficult for me to explain the way I fasten 'foundation' in skeps. I will do my best to make it as plain and simple as possible. Take a skep (flat top) on the knee and draw chalk lines 1½ inches apart, either parallel or at right angles to the entrance (A to B), just to show the way the combs are to run; cross each line at right angles (at C) in three or more



places, each + shows where the wires are to come through. Then take some fine brass wire, cut to the proper length, and with a strong darning-needle, or bradawl, put the two ends through the skep, both ends coming through in or about the +. When all the wires are in, put the first three right and the foundation between them; take a small button, or bit of wood, with two holes in it, put the two ends of the wire through the button-holes, press the button to touch the comb, and at the same time draw the wire straight and twist. Do not cut the ends off, I shall make use of them yet. With each wire do the same. To secure the combs at the bottom, put three sticks through the hive walls (from D to E) across the bottom of the combs; take the wire ends not cut off and twist them around these sticks. I think that a few half-sheets are preferable to whole ones as a trial.

My only objection to this plan is annoyance in taking the honey, but I trust that some one will improve on this.—CYMRO BACH.

WORK FOR THE BRITISH B. K. A.

[1240.] There is not the demand for honey that there ought to be, and I think the Association much to blame for not by any means in its power trying to foster a taste for honey among the purchasing public. There are thousands, aye, millions, who have not yet tasted honey—who know it only by name, and but want their attention called to it.

The B. K. A. would do well to copy the tactics of the Vegetarian Society, which does not leave a stone unturned to further its objects. Letters to daily newspapers from members who are well up, setting forth the virtues and different uses honey may be put to, getting the right side of editors to admit a short article—this gave the jam trade a great spurt a few years since—are within the scope of the B. K. A.—LANCASHIRE.

NOT FINDING THE QUEEN.

[1241.] I notice in your report of Aberdare Show mention is made of one of the candidates failing in finding the queen for some time, but that he was as well

qualified to act as expert as many whom the examiner had passed. It seems to me that a candidate not being fortunate in finding the queen quickly does not pass his examination to satisfaction. Now, Sir, I cannot help thinking this a rather hard case. I will explain why I think so by giving my own experience.

On one occasion I commenced to examine one of my hives, which contained nine frames. I took one, two frames, and hung them on a stand I use for the purpose, and then took out the hives one by one, examining each as I took them out, and put them into the hive separate from the others, so that the queen could not get on to the one I was putting in; but I failed to find her until I came to the frame on the stand which I had taken second from the hive, and there I found her in looking the second time over them. On other occasions I have found the queen, sometimes on the second, third, or fourth frames.

On one occasion this summer I did not find her until I took out the eighth frame, and when I did find her she was nearly at the bottom, between one of the side bars and the end of comb. Therefore I think if a candidate does all his other work to the satisfaction of the examiner, and can pick out the queen when he does find her, he ought to pass.—J. F., *Durham.*

EFFECTS OF STINGS.

[1242.] Not long after we commenced bee-keeping my wife got a sting on the head, which produced the same effects as that mentioned by W. Elfred, on p. 370 (1201). I was operating once on a hive with bare hands, and some bees were creeping over them. I thought I would drive them off with a puff of smoke, but as soon as I gave one puff one of them stung me on the back of the wrist, striking a vein; the pain was severe, and in twenty-four hours my arm to my shoulder was as thick as my leg. My hand was three times as thick as the natural size, and I could just move my finger-ends.

I was doing some work inside my bee-house once this summer when a bee stung me under the right ear on the jugular vein. It caused very severe pain and a sensation in my head, throat, and chest, as though I had got a very severe cold—a difficulty in breathing, so much so that I had to walk the floor for breath. The nettle-rash also came out all over my body; these, accompanied by high fevered sensation, continued for two or three hours, and then followed swelling in my throat, inside and out-side, down to my chest, which continued to increase for over twenty-four hours. It is generally four or five days before swelling settles down, the fevered feeling only passing away in proportion with the swelling.

Two or three weeks ago my eldest daughter, a girl of fifteen, was stung on the back of the neck with a wasp, and in the evening with a bee on a vein in her throat. I pulled the beesting out as soon as I could. She complained of suffering severe pain; but, strange to say, the effects of both stings passed away in a short time, without swelling the least, what can be the reason of the different effect on different persons? She appears to be bee-proof, to begin with, but I do not think I will ever become so.—J. F., *Durham.*

EXTRACTING FROM BROOD COMBS. (1213.)

[1243.] Your correspondent 'G. T.' states 'he does not believe that bees are such fools as to visit such places as manure-heaps, stagnant ponds, &c., if there is good water within three miles of them.' All I can say is whether he believes it or not it is an undoubted fact, and he must use his eyesight more. 'There are none so blind as those who won't see.' Well, if he has extracted 600 pounds of honey this year, he does not say it is from brood-combs. I could extract that quantity from my hives to-morrow if I cared to do so, but then I should have to give them syrup. But that is not the point. I say when combs contain unsealed brood, it is surrounded with a thin, watery liquid which is not pure honey. He then goes on to say, 'I find it necessary to use the extractor freely when there is a honey glut to give space for the queen to lay, or if not the stock will soon dwindle away. There will be very little honey got in sections or otherwise, and there will be a very poor stock for wintering, mostly old bees.' Surely he has been reading this in regard to skeps; it has no application to modern bar-frame expansible hives, in fact it is pure nonsense. Whoever heard before that it was necessary to extract the honey from the combs to make the bees fill the sections? And lastly, his insinuation that I wrote 'to run down pure extracted honey, and leave our market open for adulterated foreign honey,' I treat with the contempt which it deserves.—F. Boyes, *Beverley, Sept. 5th.*

JUDGING HONEY.

[1244.] I would not trouble you on this subject, especially after your note at the foot of letter 1200, but for a recent decision in the same place, but by different judges. I take a deep interest in the Glamorganshire B.K.A., and would remind those members who feel aggrieved that as yet the Society is in its infancy, and requires careful nursing and attention, and such letters as have appeared in the *Bee Journal* tend really to injure its prosperity and influence; and my plea for referring to the subject is that the Committee of the B.B.K.A. will see the urgent necessity of providing some rules and regulations for the guidance of judges.

In the *Journal*, August 25th, page 368, you give a report of the Aberdare Flower Show. The report states that for 'The largest and best exhibit of extracted honey in bottles,'—please note that it is largest and best, and not best and largest,—the first prize was awarded to sixty bottles of clover honey; the second—the report omits this, to forty or fifty bottles—passing over an exhibit of three hundred! and why? Because the honey was of a dark colour (gathered from the raspberry cane, Dr. Walker thought) and because granulation had set in. Now, sir, I would ask, is it to go forth that clover honey is five times of more value than that of the raspberry cane? Ought granulated honey to be passed over at shows? Ought colour—or is colour to be preferred to flavour? Or supposing both are equal in flavour, would colour score five points to one in such an exhibition? If such judges as Dr. Walker and another give such decisions, one cannot wonder that a third-class expert will fail to give satisfaction. Let us hope that before another season definite rules will be given by the B.B.K.A. to experts, and to—One who Wishes to Learn.

Wasps.—Very plentiful in the north. The easiest way to destroy them is to roll a piece of rag together about the size of one's finger, saturate it with turpentine, place the rag in the hole leading to the nest, and cover it with soil to keep the air out. This should be done about six o'clock at night. Nothing further is required, but if the nest is dug out next day every wasp will be found dead. They can be destroyed in this way in all places where the air can be excluded.—G. Garner (*J. of H.*).

Echoes from the Hives.

Richmond, Surrey, September 2nd.—Honey harvest all over in this district. Have not done quite so well this year as last, but must not grumble. One new beginner in Kingston has had about 30 lbs. for his first crop. Have had the pleasure of helping to start two friends in bee-keeping last week. Have introduced two young queens successfully by the direct method, and have made one strong nucleus lot headed by young queen. Bees are going into winter quarters well stored with provisions. Looking at it all around we are going ahead.—H. Crawley.

Rowley Avenue, Stafford.—I have five bar-frame hives, of which at the beginning of the season four were fairly strong and one weak; from the four strong ones I have obtained about 340 lbs., an average of 85 lbs. a-hive, and from the fifth about 10 lbs., a total of 350 lbs. from five hives, an average of 70 lbs. a-hive.—H. J. Bostock (*Graphic*).

The Mall House, Lismore, August 27.—The honey season is over here, and as far as I am concerned has been a very prosperous one. I began badly: during a long absence from home in cold spring weather several stocks died out from queenlessless, so I began with ten bar-frame hives and four skeps. One bar-frame hive more lost its queen and gave me only half-a-dozen sections, and one skep that I inverted and supered with sections only gave me a dozen perfect ones. My other hives did fight well, however, and I got 442 perfect sections and 431 lbs. of run honey. The inverted skeps, worked with queen-excluder and supered with bars, were really a first-rate investment. I inverted them early in June. Let no one try to do so without passing sticks through the combs from side to side a few days before. I quite agree with Mr. Chenevix about working at an apiary in the evening. All my work, with two exceptions, has been done after six o'clock this season. The exceptions are hiving swarms and removing sections. I have found great comfort as to the latter by taking the racks of sections off the hives (with a little smoke) at about nine or ten o'clock in the morning. I carry the rack to an empty hive in the shade, remove the cover, and substitute a carbolic-sprayed cloth. About two or three o'clock in the afternoon, or later if convenient, I remove and store the sections, now free of bees, who have made their way out of the door of the hive and flown home. The ventilators of the hive being stopped with paper the door is the only light space, and for it the bees make to find their exit. Many friends have adopted this plan and speak very well of it. Timid or inexperienced persons find section-taking a formidable business and quite dread the process. My bees, though some little distance from the moors, brought in the fine weather such a lot of heather honey that I have scarcely any autumn feeding to do.—F. W. C.

Cahir, Tipperary.—Seeing many people are giving the results of their bee-keeping experiences, a few words from a beginner may not be out of place. I started bee-keeping by getting a swarm end of July 1885, when every one said it was useless to commence. I put them in a bar-frame hive, and fed them well all the autumn and spring. Last year I had two swarms from the stock, and took also over 30 lbs. of honey, besides taking some from the swarms. This year I took from the first swarm I had last year 63 lbs. in supers on June 24th, and 40 lbs. August 3rd, and I also took a frame of 5 lbs. a few days ago, 108 in all, besides leaving them about 40 lbs. for winter use. The other swarm produced 42 lbs. on June 22nd, and 30 lbs. August 1st, and from the old parent stock I took 65 lbs. I consider this very successful for a beginner to get 245 lbs. from three stocks. We had a particularly good honey crop here in June, but end of season very poor. I expect each hive has from 40 to 50 lbs. of honey on the frames still.—S. E. M. C.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

Beeswing.—*Carbolised Sheet.*—The recipe given by the Rev. G. Raynor for quieting bees in preference to smoke is—

'1½ oz. Calvert's No. 5 carbolic acid.
1½ oz. glycerine.
1 quart of warm water.

The acid and glycerine to be well mixed before adding the water, and the bottle to be well shaken before using.' A piece of calico, or preferably 'cheese-cloth,' sufficiently large to cover the top of the hive should be steeped in this solution, wrung out dry, and spread over the hive on the removal of the quilt, when every bee will quickly disappear below, and manipulation may be slowly and quietly performed without annoyance from the bees. The same plan is effectual in driving the bees out of section cases. From unsealed sections bees often refuse to budge, but a little blowing through the strainer will always dislodge them. All our sections are thus removed, and we have never experienced the slightest scent or flavour of the carbolic acid attaching to the comb or honey. This unpleasant result occurs only to bunglers, who either use too strong a solution or do not wring out the carbolised sheet sufficiently dry, and so besprinkle the comb honey with the solution, and charge the evil result of their own stupidity on those who recommend the process. The strength of the solution quickly passes away, as the acid evaporates when exposed to the air. The bottle, therefore, should be kept tightly corked, or the effect on the bees will be *nil*.

C. B.—Treacle is not good wintering food for bees.

G. J. D. Barnes.—*Moving Hives.*—You may move the hives with safety when the weather is too cold for the bees to fly. When the first fine day arrives, place a bough or board against the entrance, so that the bees may note their new location.

E. A. S.—1. *Uniting.*—On a fine day take out the combs that have fallen into the hives, shake or brush off the bees before the entrance of the hive with which you propose to unite it, piece and straighten the combs, and tie them with tapes into the frames, the bees will soon fasten them properly. 2. *Driving.*—Bees may in fine weather be driven from skeps and united with the small colonies in bar-frame hives. 3. *Little Wonder Extractor.*—In a small apiary the Little Wonder Extractor will be found of great service.

Beginner.—Read carefully *Modern Bee-keeping* and Cowan's *Guide-book*. Prepare your hives during winter, and commence operations earnestly in spring. Purchase swarms in May. 2. *Simmins' Union Hive.*—An account of this hive will be found in No. 244, p. 85. 3. It will save you much trouble if by the end of this month you provide sufficient stores to last your bees till next spring. You might then use, if necessary, Mr. Simmins' dry sugar feeders.

J. S. L.—*Foul Brood.*—The comb is badly infected with Bac. Alvei. If the bees are strong enough to work out foundation, could they not be built up like condemned bees? It is too late for any one with little experience of the matter to begin treatment. The suggestion that dirty water causes foul brood I do not think tenable, but it has not been proved to be incorrect. We do not as yet know of any natural habitat for this particular bacillus but the body of the bee.—F. C.

L. S. J.—*Foul Brood.*—The comb sent is affected with foul brood. You may supersede the queen and feed with phenolated syrup. When spring arrives continue such feeding without intermission until the brood appear quite healthy. In the case of any one having only a single colony we should advise the destruction of same and a fresh commencement. After destroying bees, combs, quilts, and frames, disinfect the hive with a solution of carbolic acid mixed in the proportion of three ounces of acid (Calvert's, No. 5) to a quart of water. First mix the acid with an equal quantity of glycerine and add the water hot, continually stirring same.

C. A. J.—Please refer to replies to 'J. S. L.' and 'L. S. J.' and our editorial.

F. W. C.—Mr. Lee's address is 43 Glycena Road, S.W.

F. J.—*Observatory hives and Judging.*—We consider that no judge should adjudicate at a show in which he is a competitive exhibitor; if such is allowed there will sure to be unpleasantnesses arise. As we before stated, our opinion cannot be definitely given upon the merits of an exhibit that we have never seen, but from your description we should have given the preference to No. 3. Certainly not to No. 1, as, according to your description, they were in an abnormal condition having two queens. Even if bees have only recently been removed from a bar-frame to an observatory hive it would not debar the exhibitor from taking a prize; in fact, many are so exhibited.

Received from J. J. W. Currie, Dalbeattie, a piece of honey-comb. The honey was of a high quality, and of excellent colour and consistency. We should be pleased to know how it had been produced.

Business Directory.

HIVES AND OTHER APPLIANCES.

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APPLETON, H. M., 256A Hotwell Road, Bristol.
BAKER, W. B., Muskham, Newark.
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Editorial, Notices, &c.

THE CLOSE OF THE SEASON.

For many weeks—we may say even from the middle of July—the honey season of this the year of Jubilee has closed, with the exception of those districts which rejoice in the vicinity of heaths. The honey harvest this year came prematurely and unexpectedly to a close. In common with gardeners and all others who depend on the productions of the soil, bee-keepers have had many difficulties to contend with during the past season. A lingering winter, and a long cold spring, and a summer which will be memorable for its absence of rain, have proved adverse to the production of plants on which the bees depend for their store and sustenance; yet notwithstanding these drawbacks we are in a position to say that the honey yield of the year has proved a fair average one. We cannot assert that the season has been good throughout the kingdom, yet the production of honey in some parts has been very great. In many counties of England and Wales the honey yield has been large and full of encouragement; at the Shrewsbury Show about six tons of honey were staged. In Scotland, more especially in Northern Dumfriesshire, the honey harvest of the year is said to have 'risen to a position of real importance among the agricultural events of the season.' In Ireland, too, the reports of the harvest and the quality of the honey are most encouraging. The earnestness with which the shows have been conducted declares that the bee-keepers in Ireland have thrown off their former lethargy, and in their new-found self-reliance and fresh energy have determined to avail themselves of the great honey resources of their country, and to walk abreast of their brethren in England and Scotland. There is a future before Irish bee-keepers, and we hope to see their exhibits in the open classes in Great Britain in the coming year.

Many old bee-keepers in some districts assert that the present season has been the most fruitful in their experience, and the month of June the finest thirty days of honey-gathering they have ever known. At the same time we have had from sundry places low and doleful accounts of the honey yield, more especially from Middlesex and Kent. But taking the country as a whole, the retrospect of the season is encouraging and should lead successful bee-keepers to look joyfully forward, while those who have not been specially favoured need not be discouraged, but see Hope yet beckoning them onward with the prospect of a brighter future.

The season for the bee and honey exhibitions has, also, well-nigh run its course. From week to week we have announced a list of shows; these have now come and gone; honorary secretaries have performed their arduous task, and we hope that the results have been satisfactory. The enthusiasm evoked by these shows in previous years has been well sustained in this. We are not able perhaps to point to exhibitions having been honoured by the presence of royalty, as we were last year at the Norwich and the Hampshire, nor have we any show to compare in grandeur or in magnitude with the great metropolitan exhibition at South Kensington; but we consider that good, honest, and hearty work has been achieved without 'the pomp and circumstance' of brilliant patronage. We have this year fought in the shade, but success has followed our efforts; the march of bee-keeping, both in Great Britain and in Ireland, has been onward. The good seed has been sown broadcast in many a town and many a hamlet, and the result, if we faint not, will be seen in after days. By these shows, by the display of the necessary appliances, and by the results of work in solid sections and translucent bottles of honey, the significance and intent of them have been well kept in view, viz., the promotion of bee-keeping; the obtaining a market for honey when produced; the making known the virtues of honey as food and medicine; the creation of a new industry whereby the labourer and the artisan may be benefited; and the setting before the cottager a more interesting and fascinating pursuit, which will rouse his intellect, elevate his mind, and introduce a refining motive to his existence superior to the low and often-debasing temptations by which he is surrounded, and impart a freshness and energy into his dullened life. Exhibitions are essentially didactic. Who can tell the extent of the benefit which may be conferred on the advocate of the skep as he listens to the lecturer showing by voice and hand a more excellent way of keeping bees; and, while listening, he resolves to abjure his old system, and be more on a level with those bee-keepers of whose success he had heard and whose results he had

seen? Before this he was in darkness, he had perhaps never seen a queen,—scarcely believed that such a thing was in existence. But with his eyes he sees her,—he is convinced of his mistake in adhering to his antiquated methods; a new revelation dawns before him, and he departs from the exhibition with new hopes and fresh resolves.

But exhibitions prove of service not alone to the cottager, but also to the farmer. The union of apiculture with the old and well-established pursuits of Agriculture and Horticulture has been well exemplified in those exhibitions which have been held during the past season. By far the larger number of bee-keepers' shows have been held in connexion with the County Agricultural Associations, and the bee-keeping department on these occasions has not been the least attractive part of those shows. Bee-farms have been established in various parts of the country; farmers are recognising in bee-keeping a valuable auxiliary. It is pleasing to find that the majority of the Agricultural Societies are taking the recognised County Bee-keepers' Associations under their wings, and it must be gratifying to witness the warm interest that is taken in the bee department by the farmers, their wives and daughters, and the public generally. Many intelligent farmers have added bee-keeping to the other occupations of the farm; and when we remember that the annual amount paid to the foreigner for honey and wax is not less than 133,425*l*., we may well think seriously whether in these depressed and depressing times it is not possible to produce them at home rather than to allow the flowers 'to waste their sweetness in the desert air.' The fruit-grower and the seed-grower and the farmer will find their crops improved and increased to a very much greater extent by their keeping bees.

SUNFLOWERS, BEES, AND OTHER INSECTS.

These showy, æsthetic, and truly handsome flowers are recommended to be grown by bee-keepers as late pollen-producers, though we question very much, if grown for this alone, whether the game would be worth the candle. But if poultry be kept, we would distinctly urge you to have a patch somewhere in the garden where they will hide or beautify an old wall or fence. The flowers may be used in house decorations if the bee-keeper can find in his heart to be so extravagant; the pollen will materially assist in rearing brood, strong and prepared for a successful wintering; then, when autumn concludes, there is a magnificent harvest of seed for the poultry, which is well appreciated by them, and gives a good return to their owner as fattening food.

The sunflower is not, as is generally supposed, a single flower, but is a conglomeration of hundreds of small ones crowded together into a head, the outer ones (those bearing the golden yellow blades) being barren, and named 'florets of the ray,' their *raison d'être* being to attract insects to the flower for cross-fertilisation purposes. The more numerous inconspicuous flowers are grouped together in a central mass, and are called 'florets of the disc;' in short, the disc is the dark centre and the ray the petals of the flower. Taking the ray as being simply a colour bait for insects, we will next consider the true perfect flowers—the disc florets—those flowers which have within them perfect organs of reproduction. The table, or placenta, on which these are fixed continuing to grow, forces the outer florets further apart by pressure from the centre, where they are so densely packed together, immature, and unexpanded, that insects can find no passage-way amongst the flower-tubes, as they can amongst the older ones, now bearing at the base of each a seed, protected by a hard extine skin, proof against the attacks of earwigs and others. When we observe the beautiful symmetry of the convoluted lines in which the florets are arranged, amongst which are roaming earwigs, we at once see the utility of their bodies being so supple, bent as they are the shape of the letter S. Here in these thickets, hitherto almost impervious to their attacks, they move about with ease and hide from their enemies. The outside florets, maturing first, leave a protecting stockade or fence, consisting of the anthers which are pushed up and out of the florets by a long stalk or filament, the cases of pollen open and shed their contents, so that thrips or other small insects which are roaming about may carry it on their bodies from one sunflower to another. Passing in imagination through this stockade of filaments as a predatory insect might, let us see what steps the flower takes to preserve the unexpanded, juicy, tender florets within from its attack. Scattered about on the surface (a corrugated tableland) we notice minute drops of what appear like nectar, and wonder how it is none of the numerous insect visitors seem to care for it, and leave it intact. If we taste it or rub it between finger and thumb, we shall find it to be a beautiful aromatic, resinous compound, very fluid and sticky—the very worst thing for any insect except as a sort of propolis, the very best protective for the plant—water and weatherproof, and so disgustingly bitter that our insects do well to leave it alone. Honey is contained in the flower-tubes, but these are so deep that they are only accessible to insects having unusually long tongues, or which are able to creep bodily down. Thus does Nature's chemistry provide the sunflower, amongst her myriad others, with substances both attractive and repellent, for friend or foe, according to its own or their requirements; these diverse compounds, so totally at variance, being found close to each other on the flower, and evidently secreted out of the same sap by a similar type of cells.

USEFUL HINTS.

Weather.—The rains have descended at last, and the meadows have again put on their verdure, but few are the flowers, and, with the exception of that 'rare old plant, the ivy green,' there is no pasturage for our bees at this late period.

Wasps.—Nights have been frosty, and days too cold for bees to fly, but wasps can bear a much lower temperature than bees, and have paid constant visits to hives whose guards have retired within to avoid the chilling cold. To strong colonies these marauders do little harm, but many a weak one has perished under their persistent attacks.

Robbing, and Carbolic Solution.—In dull, cold weather, at this time of year, when bees are flying little, a cloth steeped in carbolic solution, wrung out dry, and laid upon the alighting-board, will check the attacks of robbers and wasps. Renewed every morning it is as good a preventive as we have tried. In bright weather, when bees fly freely, and have a decided penchant for robbing, the cloth should be sprinkled, or sprayed, several times daily with fresh solution. If these precautions are carefully carried out there is no colony in existence that can rob or destroy another, however weak it may be. One caution we would add, viz., never to use the ordinary *crude* carbolic acid,

usually retailed by the chemists, but ask for 'Calvert's No. 5,' and use it for *all* purposes connected with bees and hives, except for mixing with food. The unpurified, crude article might, likely enough, contaminate sections if used carelessly in their removal, but of this we have no experience since we always use 'Calvert's' purified. By means of it we have removed thousands of sections during the last two or three years, and have never heard a single complaint of any contamination being conveyed thereby. But of sections being flavoured with smoke, and spoiled by the filthy fluid dropping from the smoker, we have often heard complaints, and have suffered ourselves. Our sections, too,—without any 'self-praise,' which we are aware 'is no recommendation,'—are pretty well known to all the best judges in this county. Again we repeat that under our 'Heading' nothing is recommended to others that we have not ourselves proved, and let any one who doubts refrain from making use of our 'Hints.'

Manipulations should be performed as sparingly as possible. The less bees are disturbed after the middle of September the better. Manipulate in the evening only. Do it quickly and quietly by using the carbolised strainer, which by one motion may be drawn over the frames as the quilt is drawn off. Turn back the strainer sufficiently to take out the first frame or division board, and thus proceed until the operation is completed.

Drone Comb has been built in several of our hives on worker foundation; notably, one hive has about half its cells drone, and this was one of our best swarms which has given us over 90 lbs. of comb-honey. In several cases where we did not fill the centre frames with foundation, leaving about a quarter of the space to be filled up by the bees according to their instinct, drone-comb has been built without an exception. We are not quite sure that it is wise to endeavour to deprive the bees of that which nature so strongly demands, and it would, perhaps, be wise to allow a small portion of drone-comb in every hive. In hives most productive of comb-honey, whether in sections or otherwise, we have always noticed abundant drones.

Queen Introduction should be finished as soon as possible. We have introduced successfully on Mr. Simmins's plan, but in one instance had an encasement and were obliged to cage the rescued queen. At this season, when there is no income, and when robbing is rife, we prefer the cage for a certainty. During a copious honey-flow introduction is easier and more certain. The cage we prefer is the enlarged and improved 'pipe-cover,' manufactured for us in Germany, and a specimen of which we shall be happy to present to any friend wishing to try it. Since using this cage we have no experience of the loss of a queen.

Winter Preparation must now be thought of. The colonies undisturbed after the middle of this month *always* winter best. Floor-boards should be cleanly scraped, winter quilts placed over frames, and, as soon as the danger of robbing is over, entrances should be opened to summer width, say 6in. × $\frac{3}{8}$in.—just sufficiently deep to exclude a mouse.

Before giving the winter quilts the tops of the frames should be scraped clean from propolis. Here, again, the carbolised sheet will drive the smoker out of the field. With the small spatula as a scraper and the sheet one person alone can finish off a hive as quickly as two with the smoker, since two hands are required for using the scraper to advantage, and a continuous stream of smoke to keep the bees in check. No weak colonies should be kept; although by careful attention such often pass through the winter successfully they rarely pay for the extra trouble given. Such colonies, however, with a young queen at their head, may be built up by the addition of condemned bees and early copious feeding into strong stocks. When it is desired to put this into practice there must be no delay.

Feeding should now be completed as speedily as possible. From ten to twelve pounds of granulated white cane sugar to five pints of water, boiled gently for two or three minutes, will form a good syrup for autumn feeding which will not granulate. For quick feeding, Mr. Neighbour advertises a very useful feeder, which holds twenty pounds of syrup, and is called the 'Canadian feeder.' The principle of this feeder is decidedly good, and, its material being wood only, there can be no injurious action upon the food, as in many metal feeders.

Clearing-up.—All articles for summer use should at once be thoroughly cleaned, dried, and stored for use another season, such as spare hives, section-cases, extractors, and all things appertaining thereto. Discarded combs should be melted, and the apiary and honey-rooms made neat and tidy for the winter. Let all operations be pushed forward and nothing left until next month which can be done now.

ASSOCIATIONS.

STAFFORDSHIRE BEE-KEEPERS' ASSOCIATION.

This Association held its Annual Exhibition at Burslem on September 7th and 8th, with that of the Staffordshire Agricultural Society. The site selected for the joint exhibitions was conveniently near the railway station and the town on the road from Burslem to Smallthorne.

Burslem is situated in the very midst of the Potteries and the large iron-works of Staffordshire, and is essentially a part of the Black Country. We were, therefore, naturally surprised to see such an exhibition of honey as was displayed, but were reminded that the rich valley of the Trent (as fine a tract of land as any in the midland counties) was in close proximity, and that it was surrounded by an excellent agricultural district containing rich pasturage, from which the clover honey was obtained.

As is usually the case at all agricultural shows, the bee-tent and exhibition of hives, bees, and honey, attracted a very large proportion of the visitors. All of these appeared to be much interested, and expressed themselves surprised at the progress modern bee-keeping had made during the last few years, and the different appearance of the honey, now clear and bright, and free from the dull and cloudy look it was wont to have in old times. The bees were then smothered, and the whole tainted with sulphur, the honey-combs, bee-bread, larvæ, and young bees, were all smashed up together and put into a cloth before the fire to strain, and the thick stuff, the result of all this, was called and accepted as pure honey.

We were sorry to learn that the Staffordshire Agricultural Society does not give nearly so much assistance to the County Bee-keepers' Association as is generally the case with most of the leading agricultural societies of England where the shows are held in conjunction. They simply give the privilege of holding the show within the enclosed ground, and print the list of entries, &c., in the catalogue. The Bee-keepers' Association provides and pays for the tents in which to place the exhibits, and finds the whole of the prizes. The Agricultural Society do not even give an entry-pass to each exhibitor. This is most illiberal and unusual, and surely would be altered in future if properly represented to them. The Staffordshire Bee-keepers' Association is one of the largest of the affiliated County Associations, numbering, according to the report for 1886, 484 members. The Association has been thoroughly well organized. The county is divided into some eighteen or nineteen districts, and a considerable amount of energy is shown throughout. Staffordshire is to be congratulated on the position taken, and the useful work that is being done by

this Association. We have seen the honey exhibited at several of the leading shows this year, and *had* considered that the quality of the honey shown both by the Lancashire and Cheshire bee-keepers at Manchester was the best, but now that we have been to Burslem we have altered our opinion, and have no hesitation in saying that both for quantity and quality Staffordshire stands second to none.

In Class 3, for twelve best 1-lb. sections, there were nine entries, a very fair class for the year. Mr. H. Wood, of Lichfield, was awarded first for the same sections that he took first in the open class at Manchester. In Class 4, for the best 12 lbs. of extracted honey, there were twenty-four entries. This was without exception the most even class of the kind in appearance that we have seen. There was not a single entry that was not good, and the task of selecting the three best must have been a difficult and unenviable one. We understand, however, that the exhibitors were satisfied with the awards which were made, after the time and pains taken to arrive at a decision. The majority of the honey was gathered principally, if not entirely, from clover. Class 8 for bees-wax there were 13 entries, most of them very good. The first went to Mr. J. Handley, a fine sample evidently from virgin comb. In awarding second place we understand that two adjoining entries were judged as one, being nearly similar in colour, and the number of one exhibit being covered by a piece of wax, this being found out some time after, equal second prizes were awarded to both, but this did not seem to satisfy the irate exhibitor. The most attractive exhibits were those shown in Class 9, for the best exhibition of honey in any form. Mr. H. Wood was again to the fore, exhibitiug the same trophy for which he took first at Manchester, but somewhat differently filled, containing 174 lbs. of extracted honey and 73 lbs. of comb honey, at the base was a Jubilee device in comb honey, consisting of a crown, with the letters 'V.R.' one on either side, with 1837 and 1887 underneath: this was in addition to the weight given.

The trophy exhibited by Mr. J. R. Critchlow obtained second place, it was surmounted with a royal device, and contained 150 lbs. of extracted and 108 lbs. of comb honey, it was a very good second. Mr. Elihu Clowes took third with a trophy containing 134 lbs. of extracted and 61 lbs. of comb honey. All the seven exhibits in this class were good. The comb honey of Edward Richards, a cottager, consisting of two large bell-glasses and 2 lb. sections, together about 50 lbs. was as good comb-honey as we have seen this year, and 15 lbs. of extracted. In quality the whole was superior to anything in its class, but the much larger quantities of the other exhibitors (who were farmers), left no question as to where the prizes must go. Much credit, however, is due to Edward Richards for his skill and management in producing such excellent comb-honey. Class 10 was for the best exhibition of honey in any form made by bees belonging to an artisan or agricultural labourer in the county of Stafford, offered by A. H. Heath, Esq., Madeley Manor, the hon. sec. of the Association. There were nine entries: first was awarded to D. Mitchell, of Hanley, for a handsome trophy of comb and extracted honey; the second was awarded to S. B. Fox, Maer, Newcastle, for 57 lbs. of comb and 58 lbs. of extracted honey; the third to William Green, Great Bangley, Tamworth. Edward Richards exhibited some nicely filled 2-lb. sections in this class; and had he not divided his honey by entering in Class 9 as well as in Class 10, he would have stood a good chance of a prize in this class.

In Class 1, Messrs. Abbott Bros. with a large collection of appliances took first, and Mr. A. W. Rollins took second with a very creditable collection, though not so large as that awarded first prize. We think that an improvement might be made in this class and a larger competition insured if the items to be exhibited were specified in the same way as was done by the B. B. K. A. in the schedule prepared for Bury St. Edmunds; the cost to the exhibitors would be less, and the benefit to the public would be greater, as those things only that were necessary would be then exhibited, and the judges would have only to take quality and not quantity into their consideration.

The following is the list of awards:—

Class 1.—For the best and most complete collection of hives and bee furniture most applicable to modern bee-keeping. (Open to all England.) Offered by the Staffordshire Bee-keepers' Association. First prize, 2*l.*; second, 1*l.*; third, 10*s.* 1, Messrs. Abbott Bros., Southall, London; 2, Mr. A. W. Rollins, 65 Hagley Street, Stourbridge.

Class 2.—For the best and most complete bar-framed hive without supers, price to be taken into consideration. (Open to all England.) Offered by the Staffordshire Bee-keepers' Association. First prize, 15*s.*; second, 7*s.* 6*d.*; third, 2*s.* 6*d* 1, 3, and highly commended, Messrs. Abbott Bros., Southall, London; 2, Mr. Thomas B. Blow, Welwyn, Herts.

Class 3.—For the best exhibition of twelve 1 lb. sections of comb honey, in crate. Offered by the Staffordshire Bee-keepers' Association. First prize, 10*s.* and silver medal of the Staffordshire Bee-keepers' Association; second, 7*s.* 6*d.* and bronze medal of ditto; third, 5*s.* 1, Mr. Henry Wood, Paradise, Lichfield; 2, Mr. John R. Critchlow, Maer Farm, Newcastle; 3, Mr. S. B. Fox, Maer, Newcastle.

Class 4.—For the best exhibition of 12 lbs. of run or extracted honey, in glass jars. Offered by the Staffordshire Bee-keepers' Association. First prize, 10*s.* and silver medal of Staffordshire Bee-keepers' Association; second, 7*s.* 6*d.* and bronze medal of ditto; third, 5*s.*; fourth, 2*s.* 6*d.* 1, Mr. James S. Lawton, Swan Terrace, Woore, Newcastle; 2, Mr. John Handley, Fazeley, Tamworth; 3, Mr. S. B. Fox, Maer, Newcastle; 4, Mr. Elihu Clowes, Black Brook, Newcastle. Highly commended, Mr. Thomas Bailey, Baldwins Gate, Whitmore, Newcastle; Mr. Fred Jolly, Milton, Stoke-on-Trent; and Mr. Edward Richards, Wrottesley Lodge, Wrottesley, Wolverhampton.

Class 5.—For the best stock of bees exhibited in a straw skep. Offered by the Staffordshire Bee-keepers' Association. First prize, 1*l.*; second, 10*s.*; third, 5*s.* 1, Mr. Elihu Clowes, Black Brook, Newcastle; 2, Mr. John R. Critchlow, Maer Farm, Newcastle; 3, Mr. Henry Wood, Paradise, Lichfield; highly commended, Mr. James S. Lawton, Swan Terrace, Woore, Newcastle.

Class 6.—For the best specimen of bees of any race, exhibited with their queen in an observatory hive. (Open to all England.) Offered by the Staffordshire Bee-keepers' Association. First prize, 15*s.*; second, 7*s.* 6*d.* 1, Messrs. Abbott Bros., Southall, London; 2, Mr. Geo. Farrington, Smallthorne, Stoke-on-Trent.

Class 7.—For the cheapest, neatest, and best super for harvesting honey in the comb, in a saleable form. (Open to all England.) Offered by the Staffordshire Bee-keepers' Association. First prize, 7*s.* 6*d.*; second, 2*s.* 6*d.* 1, Mr. Charles Redshaw, South Wigton, Leicester; 2, and highly commended, Messrs. Abbott Bros., Southall, London; highly commended, Mr. A. W. Rollins, 65 Hagley Street, Stourbridge; and Mr. T. B. Blow, Welwyn, Herts.

Class 8.—For the best exhibition of not less than 2 lb. nor more than 5 lb. of pure bees' wax. Offered by the Staffordshire Bee-keepers' Association. First prize, 5*s.*; second, 2*s.* 6*d.* 1, Mr. John Handley, Fazeley, Tamworth; 2 equal, Mr. Thomas Bond, Hilderstone, Stone, and Mr. E. Clowes, Hole House Farm, Milton, Stoke-on-Trent; highly commended, Mr. S. B. Fox, Maer, Newcastle, and Mr. Elihu Clowes, Black Brook, Newcastle.

Class 9.—For the best exhibition of honey, in any form. Offered by the Staffordshire Bee-keepers' Association. First prize, 10*s.*; second, 5*s.*; third, 2*s.* 6*d.* 1, Mr. Henry Wood, Paradise, Lichfield; 2, Mr. J. R. Critchlow, Maer Farm, Newcastle; 3, Mr. Elihu Clowes, Black Brook, Newcastle; highly commended, Mr. T. F. Hulme, Trentham, and Mr. E. Clowes, Hole House Farm, Milton, Stoke-on-Trent.

Class 10.—For the best exhibition of honey, in any form, made by bees belonging to an artizan or agricultural labourer in the county of Stafford. Offered by Mr. A. H. Heath, Madeley Manor. First prize, 1*l.*; second, 10*s.*; third, 2*s.* 6*d.* 1, D. Mitchell, 34 Boundary Street, Hanley;

2, S. B. Fox, Maer, Newcastle; 3, William Green, Drayton Bassett, Great Bangley, Tamworth.

Mr. Jas. Lee exhibited, not for competition, a section crate complete, showing his patent dovetailed system of construction, also one in the flat which could be put together without nails—these were, we understand, purchased by the hon. sec. and the assistant hon. sec.

We are informed four candidates were examined for third-class certificates as experts and two of these, Mr. John Beach, Burntwood, Lichfield, and Mr. Frederick Wilshaw, Cheddleton, have passed. The other two we are told failed, the weather being most unfavourable to the manipulation of bees, but another time under more favourable circumstances no doubt they will both pass, being old bee-keepers having considerable experience in the handling of bees.

Mr. John M. Hooker was the judge and examiner of experts. The superintendence of the Bee Department devolved upon the Rev. G. R. Bailey, the assistant hon. secretary. The show was a great success; the bee-tent, as usual, being a great attraction; and under the able guidance of A. H. Heath, Esq., the hon. sec., (son-in-law of the late Rev. H. R. Peel), the Staffordshire Bee-keepers' Association will continue to increase the numbers of its members and its usefulness in the county.

HANTS AND ISLE OF WIGHT BEE-KEEPERS' ASSOCIATION.

Highcliff Show, September 8, 1887.

The last show of the year held by this Association came off at Highcliff last Thursday and was as usual attended with considerable success. As many of our readers will remember, Highcliff is the southern seat of Louisa, Marchioness of Waterford, who has done so much for the Hants B. K. A., and it is situated on the sea-coast near Christchurch, overlooking 'the Needles' and the Isle of Wight. Indeed, apart from the interest attaching to a Honey Show, the view from the grounds where the show is held is amply sufficient to repay anyone travelling in that direction; and as the weather was all that could be desired for the occasion everyone was in the best possible humour for assisting in lending interest to the occasion. If we are to gauge the work done by the Hants B. K. A. by this show alone there is ample testimony that it has not lived in vain. When the first Highcliff Show was held some five years ago, if we except the specimen exhibits of Mr. Bellairs (which were then described by an incredulous bee-keeper of the old stamp as artificial bogus honey), there was nothing to be seen but a few dishes of comb honey cut from skeps and some bottles of an opaque substance which passed for honey at that time, but now-a-days would run the risk of being classed as 'unfit for human consumption.' But year by year intelligent men of the new type have been taking up the matter, so that to-day, or rather last Thursday, the cottagers mustered in strong force and united in producing an exhibition which would do credit to the cause anywhere in the country. In consequence of what we will hope is only a passing attack of the prevailing epidemic amongst Bee-keepers' Associations, the symptoms of which are shortness of cash and general anæmia, the prize schedule was considerably curtailed from that issued last year, nevertheless the entries numbered close upon fifty.

There were five classes, amongst which prizes were offered for the best wasp's nest, which drew forth nine entries and proved one of the most interesting features of the show. In this class the first prize fell to Mr. J. Hiscock, who exhibited the most perfect nest we have ever seen, and worthy of any museum. It measured about fifteen inches in diameter, was enclosed in a glass-box 'hive' into which it had been transferred about two months previously, and consequently was in full working order and fully equipped with live wasps. The second prize was carried off by G. Manning, son of the gardener at Highcliff, for a fine nest under a large bell-glass, and the third prize by a promising young bee-keeper, Harry Stephens, who, we understand, braved many stings in order to obtain an uninjured specimen.

Mr. J. Edgell was awarded a special prize in this class for exhibiting a nest peopled apparently by nothing but queen-wasps, of which there were scores. There was, unfortunately, no 'authority' present who could positively affirm that they were queen-wasps pure and simple, many people believing that it was a real hornets' nest; but this latter theory was somewhat upset by the fact that the nest had been dug out of an old bank by the exhibitor without any protection to arms or face! We think the *Bee Journal* would largely increase its usefulness if it devoted articles now and then to the life-history of wasps, ants, wax-moths, earwigs, and other insects affecting bee-keepers, quoting the best authorities, for there is a vast amount of ignorance on the subject, and it is very desirable matters should be cleared up. The writer of this article, an old and practised bee-keeper, has never seen so many wasps about his home as this year has produced, yet his honey-crop is amongst the best, and the wasps do not molest the hives. He has even encouraged two nests close to the hives! But this *en passant*.

For the bronze medal, &c. (Class 1) the first prize was awarded Mr. Allen Broom for some extremely fine and well-flavoured sections; second prize to Mr. Arthur Stephens, and third prize to Mr. J. Hiscock. In Class 2, for the best 12 lbs. of super honey in sections not exceeding 1 lb. each, the first prize fell to Mr. Ambrose Pearce, of Christchurch, second to Allen Broom, third to Arthur Stephens, and fourth to Harry Stephens. In Class 3, for the best 12 lbs. of extracted honey, first prize given by the hon. sec. of the county, there was a very keen competition, the number of entries amounting to sixteen. There were many shades of colour, some remarkable bottles of a light amber colour calling forth much interest. These proved to be pure holly honey, gathered in the New Forest when there was no other bloom for miles, of a very distinct smell and piquant taste. There is no doubt as a fashionable colour they took precedence, but when compared for flavour with the notorious Christchurch darker honey they had to take a lower seat. Ultimately, the first prize was allotted to Mr. Arthur Stephens of Newtown, second to Harry Stephens of the same village, and third to Mrs. Burgess of Hinton, whilst Messrs. Pearce and Smooker had an *h.c.* attached to their exhibits. In the Bees-wax Class, P. C. William Burgess was again to the fore, and it would puzzle any bee-keeper in all England to beat him, Arthur Stephens came second, and Mrs. Burgess third.

The distribution of prizes by Lady Waterford in the Great Hall of Highcliff followed, after a lecture by Mr. Bellairs, her ladyship remarking how much pleasure it gave her to see the Show growing in importance from year to year, whilst expressing a hope that the high standard of excellence now attained might be maintained by succeeding good seasons.

WROCKWARDINE BEE CLUB.

The annual show of the above club took place in the Boys' schoolroom at Wrockwardine. The number and quality of the exhibits reflected great credit upon the skill and energy of the members of this young and flourishing association, which has recently succeeded in passing five of its members through the third-class examination for experts certificates under the B.B.K.A. Competition was especially keen in the cottagers' classes. The exhibit of the club appliances was a centre of attraction to the visitors, as also were the exhibits of live bees in observatory hives. Mr. W. G. Preece, jun., of

Shrewsbury, well known as a successful exhibitor, acted as judge. Too much praise cannot be given to the hon. sec., Miss M. E. Eyton of Leaton, for her efforts on behalf of the club, and no doubt the present exhibition must have been to her a great source of pleasure.

Appended is the prize list:—

Open to Club Members.—Best 12 1-lb. sections—Mr. John Palmer (Wrockwardine) 1. Best 12 1-lb. bottles—Mr. Fryer (Overley), 1; Mr. John Palmer, 2; Mr. H. Brooks (Leaton), h. c. Best and most complete hive for general use—Mr. John Palmer, 1. *Open to Cottage Members only.*—Best 6 1-lb. sections—Mr. James Shuker (Allscott), 1; Mr. R. Grainger (Allscott), 2; Mr. John Shuker (Allscott), 3. Best 6 1-lb. bottles—Mr. James Shuker, 1; Mr. John Shuker and Mr. R. Grainger equal, 2; Mr. T. C. Clarke (Overley) and Mr. H. Brookes (Leaton), equal, 3; Mr. H. Shuker, h. c. Best exhibit of honey, not less than 24 lbs., half run, half comb—Mr. John Shuker, 1. *Open to all Comers.*—Best 12 1-lb. sections—Mr. John Palmer, 1. Best 12 1-lb. bottles—Mr. John Palmer, 1; Mr. John Shuker, 2.

HEREFORD HONEY FAIR.

On Wednesday, September 8th, the Herefordshire Bee-keepers' Association held their fourth annual fair in the county town. A large space was appropriated in the Market house, the counters forming an oblong enclosure. About thirty-five cwt. of honey was staged by some thirty bee-keepers. The average price for extracted boney was about 10*d.* per pound in bottles—comb honey same price. There were several inquiries for run honey in bulk that could not be attended to, owing to the fact of nearly the whole of the honey being in 1-lb. bottles. A number of people visited the fair, but most of them 'came out for to see' not to buy, the consequence being half the amount of honey remaining unsold. The arrangements were in the hands of the hon. secretary, Mr. Watkins, and were everything that could be desired. The Association also offered prizes and medals for exhibits of honey. The judges were the Rev. F. S. Stooke-Vaughan, Wallington Heath; Rev. James Oakeley, Hereford; and Dr. T. A. Chapman, Burghill. The following is the result of their awards:—

Class 1.—For the best exhibit of honey, not exceeding 200 lbs.—1, bronze medal of the B. B. K. A., and (given by the President, Mr. James Rankin, M.P.) 1*l.*, H. Bridgewater, Linton; 2, 15*s.*, Rev. G. Herbert, Llangarren; 3, 10*s.*, Thomas Charles, Caerswall, Much Marcle. Eight entries. Class 2.—For the best twelve 1-lb. jars of clear extracted honey—1, certificate, and (given by the President) 15*s.*, Rev. J. F. Marillier, Much Dewchurch; 2, 10*s.*, Alfred Watkins, Hereford; 3, 5*s.*, W. Smith, Thingehill. Twenty-four entries. Class 3.—For the best twelve 1-lb. jars of extracted honey, candied or partially candied—1, certificate and 10*s.*, Rev. G. Herbert, Llangarren; 2, 7*s.* 6*d.*, Mrs. Chelwick, Clun; 3, 5*s.*, W. Smith, Thingehill. Fifteen entries. Class 4.—For the best twelve '1 lb.' (two inches wide), or sixteen '1 lb.' (less than two inches wide), or six '2 lb.' sections of comb honey—1, silver medal of the B. B. K. A., and (given by the President) 15*s.*, F. Lewis, Pembridge; 2, 10*s.*, Mr. Meadham, Huntington; 3, 5*s.*, T. Pritchard, Clun. Seventeen entries. Class 5.—For the best single super of honey, not being a sectional super—1, certificate and 10*s.*, W. Tompkins, Burghill; 2, 5*s.*, J. Vale, Burghill; commended, Miss Parry, Marden. Six entries. Class 6.—For the best exhibit of honey in any shape shown by a *bonâ fide* cottager, a member of the H. B. K. A.—1, certificate, and (given by the President) 15*s.*, W. Tomkins, Burghill; 2 (given by Mrs. Glynn), 10*s.*, F. Lewis, Pembridge; 3, 5*s.*, W. Smith, Thingehill. Four entries.

WATERFORD HORTICULTURAL SOCIETY.

A Bee and Honey Show was held on the 6th of July in connexion with the Waterford Horticultural Society's Show, in the Rink, Waterford.

The Irish Association Bee Tent was lent for the occasion, and lectures and manipulations given by Messrs. Francis Jones and W. E. K. Duffin.

Messrs. R. White and Co., of Limerick, exhibited a fine Cowan storifying hive, and a number of appliances, and Mr. Snow an excellent amateur's hive. An exhibit by Mr. W. E. K. Duffin consisted of different extracted honeys of several years, and comb and extracted honey made up in several modes for sale or exhibit, also sweetmeats, cakes, &c., made with honey. Mr. W. Andrews exhibited 'Arnold's Soap' for cleaning propolis from the hands. The honey exhibits were not numerous, but in comb honey they were of unusual excellence.

For the best twenty-one 1-lb. sections:—1, Francis Jones; 2, Miss Currey; 3, Miss Bolton; highly commended, Francis Jones. For the best twelve 1-lb. bottles of extracted honey:—1, Miss Currey; 2, F. G. Barlow; 3, J. Barr. Cottagers' Classes.—For the best super, not sections:—No first prize awarded; 2, P. Shelly. For the best twelve 1-lb. sections:—1, P. Shelly; no second prize awarded.

EXAMINATION.

An examination for third-class experts was held at Leaton, Wrockwardine, near Wellington, Salop, in the apiary of Miss M. E. Eyton, on August 29th and 30th. Six candidates presented themselves, of whom five were successful. The manipulation was exceptionally good, all the candidates showing great neatness in handling the frames and catching the queen, due to the fact that they had been carefully 'coached' for the examination by Miss Eyton. The following are the names and addresses of the successful candidates:—Miss M. E. Eyton, Leaton, Wrockwardine, near Wellington, Salop; Henry Brooks, Wellington, Salop; John Palmer, Wellington, Salop; Thomas Shuker, Admaston, Wellington; James Shuker, Allscott, Wellington.—Geo. Walker, Jun., *Wimbledon.*

STATISTICS.

W. Lees M'Clure, Esq., Hon. Sec. of the Lancashire and Cheshire B.K.A., writes:—'Our Association is not yet sufficiently spread throughout the two counties to give reliable information about the honey yield. Our experts are now on their tours, and, when completed, I will gladly give you the best information that lies in my power, but it will take some years to get reliable and complete statistics.'

TWO ENGLISH QUEENS.

THE LESS TO THE GREATER.

My velvet robe of state is brown and yellow,
My throne an apple bough, yon peopled hive,
My subject world—great Queen, and sweet yoke-fellow,
To hum thy praise our nation is alive,
With busy murmurs in the sunlight mellow,
Mid heather blooms, whence we our wealth derive.
That queens love honey is a saying olden,
Then come and feast upon our perfumed store;
Bring thou thy robe of state and sceptre golden,
Thy royal sister queen will kneel before
Thy mightier sway, and will her fiefs embolden
A nation's welcome at thy feet to pour.
They for thine enemies shall guard their stings,
But fan thee gently with their myriad wings.

Sissells.

Honey-Lemonade.—Make it in the usual way, using honey instead of sugar; nothing can be used as a summer beverage that is more grateful and refreshing. Try it. Many thousands of pounds of honey may be used in this way, and all the users be benefited.

Cinnamon Oil.—I have tried everything for bee-stings, and I have found that pure cinnamon oil is the best thing I have ever tried. Two drops of cinnamon oil will keep it from swelling.—D. E. Barker (*A. B. J.*).

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts (see 2nd page of Advertisements).*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

OUR HONEY IMPORTS.

The value of honey imported into the United Kingdom during the month of August, 1887, amounted to 2601*l.* [From a return furnished by the Principal of the Statistical Department of Her Majesty's Customs to E. H. Bellairs, Wingfield House, near Christchurch.]

DEAD BROOD.

[1245.] In 'Useful Hints' of the 1st inst. exception is taken by the worthy writer to a portion of the letter which appeared in the previous week's issue from the pen of Mr. S. Simmins, in which Mr. S. is made to say that dead brood is a sign of 'weakness in the queen,' but Mr. 'U. H.' affirms that it owes its origin to *bacilli*. If it is the latter, unless curative measures are taken, the stock, in all reasonable calculations, would still be affected. But I take it that in Mr. S.'s case it is not so. I have on several occasions, notably in four instances this season, had the same experience as Mr. S., which I think will bear out his ideas as being the most feasible. I will take the case of a single stock having an imported queen. This queen had been confined longer than usual in her travelling box (fifteen days), and was introduced last autumn. Noticing this last spring that things did not seem to be in the most flourishing condition, I made an examination and found dozens of larvæ dead in their cells. This continued for some weeks until the warm weather set in; it then suddenly disappeared. I accounted for this by the fact that the queen had recovered from her indisposition on the advent of such weather as she had been accustomed to in sunny Italy. In two other instances the same results were experienced, but the queens in these cases had not been confined for so long a period (according to my knowledge). The number of eggs laid were about on a par with other imported queens, but I had to add brood in order to keep the hives crowded, or should have thought that it might have been chilled, although too patchy. In the third instance it occurred in a lot of driven bees. In this case they were over a week in confinement last season, and were also very close pushed for stores during the winter. Why should not queens lay eggs, some of which have less vitality than others? Birds frequently do so. In mammals, after the dam has been subjected to any extraordinary privation, some of the young brought forth will have little or no vitality, and yet others of the same birth are well and strong. With the above facts before me I think there is little doubt that all dead brood—excepting chilled—do not contain *bacilli*. Let us hope they don't.

Bees and Manure-heaps.—If Mr. Boyes will provide his bees with plenty of *salt* and water very few of them will visit manure-heaps. I trust that his opponent 'G. T.' will soon give up the practice of extracting from brood-combs, or rather from combs containing brood, not on account of the quality of the honey, but for the welfare of the brood.

Wasps.—I wish 'W. M.' would come and collect all the wasps around my location. He is welcome to them even if they are such 'useful critters.'

Honey Dew.—'Beeswing' will find that foreign races of bees will collect the excreta of aphides as readily as the down-trodden blacks. Scarcely any has been collected in this district during the last season, although we were ten weeks without rain, and very little dew.—W. B. WEBSTER, *Binfield, Berks.*

EXTRACTING FROM BROOD-COMBS.

[1246.] With one or two exceptions, I have made an absolute rule for myself not (outside my late official duties) to write to the *Bee Journal* on any subject, and certainly not on controversial points, feeling that my limited bee experience does not yet justify my protruding my views on the English bee world; but I have been drawn from my rule by a late letter of Mr. F. Boyes, on the subject of extracting from brood-comb, which has hurt my feelings, I must own, very much. To start with, quite irrespective of this special subject, Mr. Boyes has a peculiar way of his own of stating his views which always grates harshly on my ear. When a man makes a new, or even disputes an old, important statement on any science, it is usual to do so with some degree of diffidence. Quite unintentionally, I hope, Mr. Boyes writes as if no one else could be right except himself, and that once he has stated what he believes to be fact, that fact (?) must be law from henceforth. I honestly hope I have misconstrued him, and hope to get a good basting from him next week. I will own for his benefit, in writing his reply, that a letter of his, early this year or late last year,—I forget the exact date,—has prejudiced me slightly against his writings. I am open to correction.

To return to my special point, when I read the letter in question (1204), I made up my mind to wait and see whether some one better able than myself would take him in hand in the next issue, September 1st. On reading 'G. T.' on the vexed point (1213) I thought I would try also.

To start, therefore, I would ask for details of Mr. Boyes' chemical analysis of the honey from which he makes his statement, as I presume he has some grounds for it. If, as I suspect, he has not tested honey from brood (or other) combs for impurities such as would be found if there were traces of the nitrites which would be found in manure-water, I would be really grateful to him if he would, even at this late date, take a brood-comb containing honey, extract, and either experiment on it himself or get a friend to do so. To test analytically for nitrites, which are always present in all sewage water or water which contains urea (CON_2H_4) is a very elaborate process, and requires chemical skill. However, since urea is found to take up elements of water and form ammonium carbonate, this by oxidation is converted into nitrous acids. To test for the presence of nitrous acid is a very simple process, and may be done by any one as follows: Add to the honey to be tested a little potassium iodide, acidify with a few drops of acetic acid, and add a little starch. Shut this mixture up in a dark cupboard, and let it stand for fifteen minutes. If nitrous acids are present the liquid will turn blue.

I do, and always have, extracted from brood-combs, and believe it to be distinctly beneficial if done carefully. My honey (*mea sententia*) is second to none in purity, colour, and flavour; and though I rarely taste it myself, it is eaten regularly by a judge who would soon detect any vile stuff tasting of urea and manure-water. I am away from the use of a chemical laboratory at present, but at some future time I will try and go deeper into the subject which affects the interests of bee-keepers more than appears at first sight.

Next, set the chemistry of the question aside, and allow for an instant that bees while collecting honey also collect and STORE water in their brood-combs. What

are we faced with at once? Evidently, I think, that we may never extract from a comb which has ever contained brood. Because even if there is no brood at present in the comb, and all liquid has been evaporated or extracted and cleaned out by the bees, traces of solid nitrites cannot fail to remain, which would probably be taken into solution or suspension again when placed in contact with a liquid. Even if that is too broad a statement, it would, by Mr. Boyes' argument, be dangerous to extract from a comb containing honey, but from which all the season's brood has hatched out; and of these combs I always have a large number, in upper especially, and also lower storeys. I admit that bees do *visit* queer places, manure-heaps, pig-styes, &c., but I have always thought that they were only attracted there by their powerful sense of smell, and that unless absolutely reduced to water starvation, left all foul places as empty as they came. I have no definite proof on either side.

I have said my say, and now withdraw for wiser pens than mine to do fierce battle in the interests of pure English, Scotch, Irish, and Welsh honey. The only reason that I know of for not extracting from brood-combs is the possible injury done thereby to the eggs and brood. I have watched *very carefully* and am decidedly of the opinion that with care no injury is done to the brood, and, except an odd one, eggs stay in their places. The argument that I would not like to have been put in a machine and whirled round when an infant is manifestly a joke, and does not compare with present circumstances. This was gravely suggested in my presence lately, and was considered as final by the meeting. —Walter J. Stanford, *Lucan, Co. Dublin.*

EXTRACTING FROM BROOD-COMBS (1243).

[1247.] I may tell Mr. Boyes that it *was* from the brood-combs I extracted my honey, although he should have understood so from my letter; and I may also tell him for his edification that I finished extracting on the 3rd ult., and could now extract nearly 600 lbs. more, but it would not be as good honey as the first, and intend to let the bees winter on it. In his letter (1204) he says the 'liquid' extracted from *brood-combs* is *not* honey, no word of unsealed brood, or larva, as I should name it, containing the liquid, but the whole of the brood-combs, as I understood it, and so it reads—and as to the extractor taking it from the larvæ it is doubtful if used with caution.

He quite misunderstands my meaning about using the extractor freely. Whoever heard or read of using the extractor on skeps? I never did (it would have been well for the skepists if it could have been done this year, especially with swarms, as will be seen next spring). What I meant to convey was that the bees, as the cells become vacant, fill them with honey, leaving no room for the queen to lay, as she should do at least 1000 eggs a-day during the busy season to keep up the strength of the hive. The consequence is there are not sufficient young bees to take the place of those that die from different causes, which are considerable, and the hive is therefore getting weaker instead of stronger. By using the extractor the queen can lay up to her standard, as my hives prove, which are overflowing with bees, and shall winter on the eight frames, Langstroth size. I never said it was necessary to extract from the combs to make the bees fill the sections, and I consider it all nonsense on his part to have understood me writing such a thing.—G. T., *September 10th.*

TIME FOR MANIPULATION.—INOCULATION.—THIRTY THOUSAND STINGS.

[1248.] If you will kindly allow me space, I should like to say a word in answer to 'C. A. M.' (1222). I think it makes but little difference at what time of the day a hive is manipulated during *warm* weather if it is done with care and without any quick motion of the hands. I believe they notice that more in the bright sunlight than in the evening, as in the sun the shadows from our hands pass in varied motions on and off the top of the hive; this my experience teaches me they dislike. I think if 'C. A. M.,' another season, does as I have done, shade the hive during manipulation by simply fixing a small sheet on two long stakes in front of the hive in such a position as to stop the sun's rays from the hive, he would save himself from so many of those much-dreaded tenth stings, and thus save himself a deal of *howling.*

Now with regard to the *alleged inoculation theory,* our friend thinks it all a delusion. I find that a bee's sting affects one person differently to what it does others, and different stings will vary in severity and effect on one person. A great deal depends upon the part we are stung; if on a vein, or a part where our skin is thin, the effect would be more; also, our health at the time rules it considerably. I find with myself that the stings affect me less as the season advances. With some it may be different; but still I should be slow to say that others' experience, though differing from my own, is *all a delusion.*

No doubt 'C. A. M.' speaks from experience. He says, 'his natural funk leads him to exaggerate the severity of the stings that he gets.' It must be the case with himself and his *tenth-sting theory,* and when he was taking the bees from the roof, when he says he received about thirty thousand stings, perhaps about thirty were exaggeratively multiplied into that number; for if he actually received anything like that number—and, according to his *tenth-sting theory,* I should not have cared to have been near the locality at the time—the *howling* must have been awful.

With regard to calculating the winter stores by the superficial area of sealed stores, it is my plan, though it may be *most misleading.* But I should be sorry to see some of my combs two and a quarter inches thick and others only three-quarters. I think I should set to work with my knife in the early season, and teach my friends to keep their combs more regular.—A. G. Andrews, *Rose Cottage, Haughley, Suffolk.*

PARALLEL *V.* RIGHT-ANGLED FRAMES.

[1249.] The above subject being now under discussion, perhaps you will allow me to say a word. I have kept bees on both systems (cold and warm so called) for some few years, and have now about equal numbers of each. For the summer I do not think it makes the least difference what system is practised as regards the production of honey. My best hive (which gave me over 100 lbs. of honey) was on the warm system, and my next best was on the cold. But for winter I prefer the cold, though I know that will be contrary to a good many bee-keepers' advice. Last winter I lost the first two seams of bees in three of my hives on the warm system. They were starved to death though they had plenty of honey at the back of the hive, but the cold being so long without a warm spell between they could not get at it. I put them in winter quarters on ten frames, but as the weather got colder the bees got closer together, so that they only covered seven frames in the depth of winter. In the early spring I found the three last frames full of sealed honey, and the two first frames full of dead bees without a bit of honey in. Now, the bees on the cold system came through the winter in prime condition. They, like the bees on the warm system, wintered in the front part of the hive, but instead of occupying six or seven frames they occupied the front part of all the frames, so that they had access to all their stores without leaving the frames they were on. I do not think it necessary to cut passage-ways in the combs when you

have the frames at right angles. I have never found it so.

As regards foul brood, I cannot say anything on that; I have never seen it.—JOHN BULL, *Ringstead.*

P.S.—All new hives I get will be on the cold system.

STARTING A BEE-FARM.

[1250.] With your permission, I shall be very pleased if some of our veteran and much-esteemed bee-masters will kindly reply to the following—perhaps unusual—questions, viz.:—

1. What would be a fair number of strong stocks with which to start a bee-farm as a means of earning a living—*i.e.* by which an income of 30*s.* to 40*s.* per week could be secured—assuming the average price of honey sold to be 6*d.* per lb.?
2. What outlay would be required?
3. What breed of bees, all things considered?
4. When is the best time to commence?

Those who will take the trouble to answer the above will kindly accept the most sincere thanks of—A WELSH BEE-KEEPER, *September 8th.*

[Will some of our bee-masters kindly reply to above?—ED.]

A NOVICE DRIVING BEES BY CANDLE-LIGHT.

(*Extracts from a letter to a friend.*)

[1251.] My hive is now completed and inhabited, newly painted green, and looks quite creditable for an amateur. The hive I have made out of old timber that I had, $14\frac{1}{2} \times 15\frac{1}{2}$ inches inside, like the one on p. 95, in the sixpenny book (Baldwin's Dublin hive), with a moveable floor. I am really pleased with it. I wrote to Abbott's for No. 1 foundation for eight frames, and put it in. I replied to an advertisement in the *Bee Journal* and received at 10.45 last night, from Biggleswade, Bedfordshire, 5 lbs. of bees, and, I suppose, queen or queens amongst them, at 1*s.* per lb., and packing 6*d.*, viz., 5*s.* 6*d.*—I shall also have to pay carriage, about 1*s.*

We had gone to bed, having given them up for the night, but when I had got nicely to sleep there was a rap-rap at the shop-door, it wakened me, and I went to look out at the window; and I saw a gentleman standing with a box. I said, 'The bees were come!' and pulled on my trousers and received them from the station-master; he said I was to open it and let them have their liberty in the cellar: this, of course, by way of a joke. I was excited. A constant hum roared in the box, which denoted abundance of life. It was very dark and had been raining very heavily, and eleven o'clock at night, what was I to do? They had travelled all day, and were enclosed in a wood box about 15 by 12 by 8 in. deep, $\frac{1}{2}$ in. stuff, with a 2 by $\frac{1}{2}$ in. hole in one side covered with perforated zinc, to prevent the bees' exit. Now I had to decide what to do. I thought it best, as they had been confined so long, to release them. So I got corduroy, syrup, &c., all ready, and went into the garden with Frank, taking matches and candle. There was a strong wind, and we had no lantern, and the candle was blown out scores of times and as often relit. I determined first to try and drive the bees from the box into the hive, and nailed three pieces of wood together, forming a sort of tunnel between the box and hive to drive the bees through, so that they could not escape. I scarcely durst pull the zinc away from the hole of the box: I had the idea just at the moment they would rush out, because there was so much commotion inside. The sides of the box were covered with sprigbit holes. I set the corduroy on fire and blew the smoke into the box as well as I could, and drummed the box, both myself and Frank, for three-quarters of an hour; but all to no purpose,—not a bee went into the hive. I thought 'This will never do, I must try another plan.' All at once it came to my mind—'Spoonful them.' I thought I would open the box-lid just a bit—all was quiet. I opened a little further—still all was quiet. Finally, I lifted the lid altogether; there the bees were, clustered on the under side two or three inches thick—all was quiet. I lifted it gently on to the hive, having first extracted two frames from the eight, and thus leaving a gap. Frank gave me the spoon, and I pushed them all off as well as I could in the dark and intermittent candle-light. I then took the box and did the same with it—waited a few minutes, put back the two frames after they had spread a bit in the hive. I then began to collect the stragglers as well as circumstances would permit. All at once Frank says, 'There's one creeping up my leg!' 'Oh, never mind it, if it does not sting.' 'It has got higher up now!' 'Well, never mind it.' 'It's got on my back, now it's stinging me;' and there was a yelp, I can tell you. 'Go into the house.' He told his mother there were half-a-dozen on his back, his mother could only find one, but there was a red point where the sting had entered. I had the veil on and a pair of kid gloves, and did not receive a single sting.

This morning I was up early to see how they were getting on. I found a very few bees about that had been killed in the dark, and a few clusters about the size of an egg here and there dripping with wet—it rained terribly fast after we left them at night—I got them on the spoon and placed them on the quilt near the syrup bottle to revive; and at noon I found they had all disappeared except about half-a-dozen dead ones. At noon the syrup had all gone out of the bottle; about three-quarters of a pound. Some I had given them the previous night had run off the floor-board on to the ground, and about 100 or 200 bees were busy sipping it. They seemed to be quite settled, and all getting on right.

I send you herewith a sample bee. Is it not a strange experience for a start?—fancy the rapping at dead of night three-quarters of an hour from 12 to 12.45! I have not seen the queen, I suppose she will be there. Will she be fecundated already?—J. F.

HIVE-MAKING.

[1252.] I have read with very great interest the different articles on the making of hives, manipulating them, introducing queens, and the various systems of managing bee-hives generally.

After a careful study of these matters I cannot help coming to the conclusion that the majority, and more especially the labouring class, cannot avail themselves of one-half of the requisites of bee-culture as laid down.

One writer recently stated, and very correctly, that a labourer had not the time at his disposal; neither has he, sir, the tools and money to carry out all that is recommended; and except some cheaper, easier, and more simple method can be introduced, bee-culture amongst cottagers must go on very much in the old style. Some three years ago I bought *Modern Bee-keeping,* in which (page 21) very useful and simple instructions are given in making hives. This led me to make my own hives, and any one can do the same with very few tools and little expense. Many cottagers are very fair carpenters, as I have every reason to know from experience, and they, as a rule, possess the tools—a saw, hammer, gimlet, plane, and screw-driver. Now for my hive.

I get from the grocers a corn-beef box—one that holds six tins, 14 lbs. each. The box (this is obtained for 3*d.* or 4*d.*) measures $14\frac{1}{2} \times 14 \times 14$ inside. I cut down front and back level with inside, just to hold standard frame, and being fourteen inches deep it admits of frame and sections on top. I lay a piece of zinc over both ends where the frames rest, and let it wrap over slightly in the hive. This box takes eight standard frames (broad-shoulder), but I am obliged to saw just a bit off each end

of frame; metal ends would answer well here, I think. To finish the hive, I use the best parts of the top and bottom of the box for a hinged flap, which, let down, affords a small table when manipulating; raised and fastened, it secures the sections and holds the frames firmly. The nails I take out of the top and bottom of box I use to make sides a little more secure. I putty, and paint two coats. During the winter I cover with unbleached calico, and over it a pillow filled with very small bits of paper, a covering both warm, dry, and clean, and further within the reach of all. The little ones, as in my case, can, and delight in tearing up bits of paper for 'pillows.' Of course, I make an outer covering; and here again I am indebted to your small work (page 26).

Here is a hive, sir, for less than one shilling, that any labourer can make. I know that objections will be made against its size, &c.; but I have used and worked it for the last three years.—E. T.

WASPS.

[1253.] In these days we ought to be surprised at nothing, but your correspondent 'W. M.' must have surprised most bee-keepers, both amateur and professional, by his defence of wasps. I am only an amateur of a few years' experience, but so far as I know there is not a greater pest to the apiary than 'W. M.'s' favourites. True, these insects are very beautiful, and from 'W. M.'s' point of view very interesting. What can more interest a lover of bees than to see these beautiful, harmless insects glide gracefully along the alighting-board, till, reaching the entrance, they get repulsed once, twice, or even the third or fourth time, and then, with perseverance worthy of a professional burglar, at last find the doorway unguarded, and proceed to plunder right and left—bees, brood, honey, they don't care what—and, after disabling a few bees, who have eventually to be carried out corpses, fight their way out, only to repeat the process, I am afraid to say how many times a-day. As to their destroying aphides, *they may* do so, but, like the sparrows and tits, they have got so demoralised that green fly and red spider have it their own way while the fruit and the poor bees have to suffer. These harmless insects, too, have another good point: they are early risers (they get up about two hours sooner than bees and retire an hour or two later), and, unless it is a very strong stock, they make sad havoc while the bees are more or less dormant. I killed (I hope for 'W. M.'s' forgiveness) three hundred and twenty of these beautiful and harmless insects as they were *leaving* one hive. True, they *may* have been in search of the larvæ of moths, but evidently they didn't know one from the other, as several met their death with bee larvæ in their jaws. If the Yankee advertisement which appeared some time since offering a reward for making outdoor life agreeable to mosquitoes were slightly altered, I believe most bee-keepers would gladly subscribe to reward him who would make outside 'an apiary' life agreeable to those harmless insects *versus* daylight robbers—wasps.—C. Honey.

WASPS—VEILS—STINGS.

[1254.] Your correspondent 'W. M.' (No. 1207) asks 'on what grounds the humane bee-keeper can defend wasp-killing,' as he has never seen or heard of wasps 'doing any damage whatever to hives.' I should like to express my belief in his assertion, but at the same time state my opinion from observations that wasps, though doing no injury to *hives*, yet do a great amount of harm to the contents thereof, namely, to the bees, honey, and comb, which, according to my ideas, is a matter of far greater moment. This year especially I have noticed wasps fighting with and killing bees on the flight-boards of my hives, possibly made more desperate by the lack of ripe fallen fruit in my garden; and on examining the other day a cottager's skep, which two months since had been occupied by a moderately strong stock of bees, and finding no bees, no honey, broken combs, and a small colony of wasps, I do not wonder at the humane bee-keeper defending and adopting wasp-killing, although they may be in other respects, as 'W. M.' says, as valuable as bees. I don't mean of course to assert positively that the entire destruction of the above stock and spoliation of its stores were attributable to wasps, but the hive having occupied a nice sheltered spot, and, as I have said, been fairly tenanted, and as numerous wasps had latterly been seen busily engaged thereabout, I cannot help sharing in the owner's belief that 'most of the mischief was owing to them wasps.'

With regard to 'W. M.'s' inquiry if I can manage without a veil, I reply that though daily manipulating veilless I never so attempt any of the major operations, and so far have not once been stung on the eye. I have however, been stung several times on various parts of my body, but not felt any inconvenience therefrom. That some stings hurt more than others I know, but, in forming my opinion as to inoculation or otherwise, do not look to the actual pain suffered at the time of infliction, but to the after results. And when I find that though when stung a blister may rise, giving pain, yet in a few moments it disappears without the application of any so-called remedy, and all pain ceases, I cannot but believe in inoculation, and deem myself inoculated notwithstanding.

'1222's' humorous experiences 'up a scaffold.' By the way, if not giving him too much trouble, I should like to ask what ultimately became of the queen, the sole survivor of the 'strong stock,' for it is evident from his letter that she alone survived the horrors of that dreadful day. Let me refer to his letter for particulars: 'The stock was a strong one (I daresay there were 30,000 bees), and I believe that every bee except the queen and two others left its sting in my skin; the two others stung my friend.' On reading these words I could not help thinking (without casting any reflection on '1222's' pluck) that long before his skin had received the 29,997 stings he probably had acted as 'W. M.' says wasp-haters do act, and had received the punishment the same writer declares such conduct deserves. And then the question arose in my mind, could it be possible that having innocently, and possibly blindly, carried home the queen in solitary grandeur (her two companions having paid the penalty for interfering with his friend's 'skin') and placed her in a hive discovered, on losing his 'hedgehog-like' appearance, that she and her followers were not, attributed his loss to the wasps? I make no assertion, but simply state the question as it arose in my mind.—Perseverando.

DEAD WASPS.

[1255.] Since reading your article on wasps, in *B. B. J.*, I have given time and attention to them and find that single-handed the bees have no chance. This week I discovered between two hives I have on one stand a small mound of dead wasps, numbering near two hundred. Now, the bees must have carried them there, but could it be from one or both hives. Perhaps some bee-keeper will enlighten me.—Member Worcestershire B. K. A.

BEES INVADING SHOP.

[1256.] Your lively correspondent 'X-tractor' is wrong. The bees which invaded the Dunbar shop were, I believe, the property of an old gentleman who lives just across the street. Curiously enough, that was the third time a swarm from the same owner had tried to make a home in that shop. Could it be the same queen who has yearly coveted this place? Queen records not being kept by this bee-keeper, I have been unable to find out.

What does 'X-tractor' mean by the—poetry, shall I call it? Does he want a queen? Sorry that I have too few for myself.—G. D. Clark, *Kirklandhill, Dunbar, September 4th.*

BUMPING.

[1257.] On the subject of 'bumping' I should like to say that I found it quite a success. I bumped seven lots this year in the time I took to drive three last year, taking less than ten minutes per hive, as against five and twenty last year. There were several hives with combs very soft and heavy with honey, but I think that with care, and a little working backwards and forwards of course, these can be fished out with less mess than is made by cutting out the combs after driving, which is a very nasty business. Besides, there is the delightful 'tit-bit,' the crash! How pleasant to dash the hive of bees on the ground and hear the buzz of alarm and consternation that follows. I may say that I also followed the explicit instructions given in the *B. B. J.* for August 11 (not 18), for which I was very greatful as they came just in time, and I had never before heard of bumping, which, I think, ought to supersede 'driving' altogether.—A Learner.

BUMPING A FAILURE.

[1258.] If folk only take half your advice instead of the whole they must not wonder at failure. Bumping a hive containing tender new comb and on a hot evening is, to say the least, a great risk, which *I* would not run, With old combs I can generally get through six stocks in an hour. For removing heavy combs I use a thin piece of board, with a handle screwed on (across the grain) on which to lift out the combs, and one for the middle and the other for outside combs would be better. I think it would be better still if made of tin with a stiff wire round the edge and to form the handle.—W. E. Burkitt, *Wilts Bee-keepers' Association, Buttermere Rectory, Hungerford.*

FASTENING COMBS IN SKEPS.

[1259.] I do this by cutting ordinary top bars *with saw cuts* to the required length, put in the foundation, and fasten in the bars with a few wire nails, and tie them with wire through the top of the hive at proper distances.—W. E. Burkitt.

JUDGING HONEY.—A JUDGE APPRECIATED.

[1260.] By your kind permission I should like to say a few words on the judging which took place at the North Staffordshire County Show, held at Burslem on the 7th and 8th inst.

Being one of the exhibitors, it was my privilege to be present, and thinking it not rude on my part to notice the whole proceedings and gain what information I could from the remarks of the judge on the various exhibits, and as I stood by I remarked to a friend what a tedious and unpleasant position it was to be placed in; but I must say he exercised the greatest patience and care in making the awards. I have not sent this because I was one of the fortunate in gaining the first prize and the silver medal, but as I think Mr. Hooker deserves great praise for the judicious manner in which he performed his duty, and I return him my sincere thanks for the same.—James S. Lauton, *Swan Terrace, Woore, Newcastle, Staff.*

HONEY BY THE HUNDREDWEIGHT.

[1261.] I hope no one will be discouraged by reading the letter signed 'Sherborne, Dorset.' In the first place, he tells us he has realised 56 lbs. from one hive; then whose fault was it the others were such a failure? I am afraid he has not followed our friend Cowan upon general management in *The Bee-keepers' Guide* page 125, &c. Some of our friends fail in having more stocks than they can attend to. I find twelve to fifteen stocks to take up all my spare time, and I have found by following the Cowan essay and 'Useful Hints' in our valuable *Journal* the best results. This year my bees have done well (not better than last year). I have taken from one stock of twelve frames over 130 lbs., chiefly 1-lb. sections; another 130 lbs., chiefly 2-lb.; another over 100 lbs., one swarm over 50 lbs., No. 2 swarm over 40 lbs., chiefly 1-lb. sections; altogether the bees have paid for the labour bestowed. I don't know what stock pays so well with such an outlay of capital. Now respecting the price of honey last year, I commenced the season with extracted (which I pass through a flannel bag) at 1*s.* 1-lb. jars, sections 15*d.* a pound, 3 lbs. 2*s.* 6*d.*, sold about three dozen sections at the finish of the season at 10*s.* a dozen; and if, as 'Sherborne' says, it would be easy to find a good business man to find a market for honey, my advice is, use all your influence in trying to keep on the work of the Association to which you belong to pay for such a man. Our Association unfortunately has gone to the bad, and I should only be too glad to assist in the formation of another, as 'North Lincoln' says, upon sound principles. I have been waiting and hoping to see a reply to 'North Lincoln's' from some of our more experienced bee-keepers in Lincoln, Boston, Grantham, Louth, Spalding, &c., as we all know the great benefit an association is to the labouring classes when properly worked.—N. E. Lincolnshire.

ARNOLD'S SOAP.

[1262.] Every bee-keeper has experienced the difficulty of getting his hands clean from propolis after working with his bees. I have tried everything with indifferent success, until I was presented with a bottle of 'Arnold's Soap' to try its cleansing powers; I tried it on propolised hands, and, like other illustrious personages, 'since using it I have used no other.' The propolis disappears almost instantaneously, and saves much time and ill-temper, and leaves the hands really clean and unstained.—D. E. L.

CARBOLIC ACID—APIFUGE.

[1263.] Referring to 'Amateur Expert's' letter in last *Journal* (page 393), I don't think he need be a bit afraid of carbolic tainting his sections if used carefully, which of course he would do. I have been using it for the past season or two, and find it far before smoke or apifuge. If I want to take off a crate of sections I damp a cloth with the carbolic solution and throw it over the crate for a few minutes, when nearly all the bees go down. By merely doing this it cannot touch the honey, and how could it taint it? Some party ('A Lanarkshire Bee-keeper,') advised putting carbolic papers down between the sections, but I think that a dangerous plan and likely to taint the honey.

I have given the apifuge a fair trial; there is no doubt there is some virtue in it, but it won't prevent bees stinging if inclined. If it was cheaper, and that we could use more of it, it might; but while so expensive as it is at present we cannot do that unless we have plenty of money to pay for it. To be really useful it should be about 1*s.* 6*d.* a pint instead of 1*s.* 6*d.* for a tablespoonful as it is.—A Cottager.

ASSOCIATIONS AND MEMBERS' HONEY.

[1264.] With reference to the suggestion made this week by 'Sherborne,' Dorset, that Associations should assist their members in the sale of their honey, I may mention

that this is done by the Irish Bee-keepers' Association. We have established a depôt in Dublin where, by the agency of a good business firm, the honey of our members is sold to 'grocers and others who come directly into contact with the consumer.' A commission of five per cent paid to the business firm and charged to members is the only share of the profits taken in this case by the 'middle men.' So far we have sold during the present year nearly 2000 sections, besides some extracted honey in bottles. As regards prices, there was a short period—about a fortnight—when the market was flooded with sections, and we could not obtain more than the price complained of by 'Sherborne,' viz., *6d.*; but now, and during the first half of the year, the price has been substantially higher than this. With reference to extracted honey, we have not had any of it sent *unbottled*. Probably we could not obtain more for it in that form than 'Sherborne' does. But in bottles, after deducting 1½*d.* for bottle, &c., the prices obtained leave considerably more than *5d.* a pound for the honey.—HENRY CHENEVIX, *Hon. Sec. I.B.K.A., Blackrock, Dublin.*

LANCASHIRE AND CHESHIRE BEE-KEEPERS' ASSOCIATION.

[1265.] In your report of the above, in your issue of the *British Bee Journal* for September 8th, I noticed there is an inaccuracy as to the quantity of honey said to be staged by me in the class for the best exhibit from one apiary in quantity not less than one hundredweight, as in addition to the quantity named in your report I also staged in this exhibit a 'device in honeycomb,' representing a V. R. with a crown in the centre, and the figures 1837–1887 underneath. This device alone gained a bronze medal as second prize at the recent Caledonian Society's show held at Perth, such prize being awarded in a competition of eight exhibits in the same class. Regarding the question as to whether extracted honey only, or a collection of both comb and extracted, was intended by the schedule of prizes to be shown in this class, and your emphasis on the word '*Honey*,' printed in italics in your report, I would point out that before making my entries for the show, I wrote the hon. sec., Wm. Lees McClure, Esq., for information as to what should be shown in this class, and he replied, 'Both comb and extracted: honey in any form.' This, I think, should confirm the decisions of the judges. —H. WOOD.

Echoes from the Hives.

'*Honey Cott*,' *Weston, Leamington, September 12th*, 1887. —During the month just passed I have been very busy of an evening driving bees, and making them up into stocks, by giving them combs ready built and feeding them up; some that I took a month ago have been breeding well, and are in first-rate order. After getting the bees home of an evening if I have any brood, which I get sometimes, I tie it in frames and place in the centre of temporary hives which hold about seven or eight frames, though usually I only place about two combs on each side of the one with brood, I then place them on a board on the ground and raise the front of hive up about 1½ inches, also putting another board up to the other, and get the hive with bees and give it a good smack on each side with both hands and the bees fall out on the board and soon run in. If there are not bees enough to make a good stock I pitch another lot on to them, so that in running in they always unite peaceably; then, first thing in the morning, I place them in their proper place and feed at once, so that there is no fear of their turning out as poverty swarms. I should like to give my opinion against bumping, except in regard to casts that have not more than half filled their hives with combs. I know that people would not want me to take their bees if I messed up the bees with honey, &c. as some do, whereas people send and ask me to drive their bees, because they have had it done satisfactorily year after year, the young queens from casts and old stocks that have swarmed I look after, so as far as possible to only save the young queens. The bees now keep at home to protect themselves against robbers, either bees or wasps, while of the latter they lay on the ground in front of the entrances showing that the bees are masters of the situation. I cannot understand the wasps killing whole stocks, except they are queenless or the entrances much too large. While stocks are in proper order I never fear damage from the wasps; fortunately I got most of my sections taken off and extracting done before they became so numerous.

Haworth, Keighley.—Our report is as follows:—Started year under gloomy prospects, very cold and wet, until end of May. Vegetation was kept back, so that when June and better weather came all was out at once, viz., bilberries, sycamore, hawthorn, and fruit trees—bloom in abundance. Bees then did well; but owing to cold May, hives were not ready for it. By end of June all was over in this section. Fields were cut and bee pasturage reduced. Increase plentiful—never did better better in the time; but, owing to hot, dry weather, instead of bees forging ahead, they gradually consumed stores, and when taken to the moors in August, about the 7th, there was not a pound to spare (none had been taken). For three weeks after bloom was out nothing was done off it, on account of dryness and frosty nights. Rain came; we had then *five days* in which the bees worked marvellously; every space was filled up in next to no time, and our hearts rejoiced,—when suddenly the weather broke, and it has been rain ever since. Now all is over except the rain, which continues to descend. All we have to depend on here is the ling bloom; if that fails, we fail likewise. Straw skeps are chiefly used. Myself and one friend have bar-frames—I thirteen, he twenty. He has been a bee-keeper these last forty years, and his report is, 'If all was reckoned up, I am 100*l.* debtor to cash just now.' This is a poor district for bee-keeping, and my friend's private opinion of it is as follows: 'Noo wun reete i' ther heads wod keep bees i' this cuntry.' Wasps are becoming a nuisance, they are so plentiful; no fear of their dying out just yet. They are also plentiful, even to a scourge, in two places more I can mention. Cannot give weight of honey yet, but consider average about 20 lbs. a hive surplus.—G. ROBINSON.

Kirklandhill, Dunbar, September 4th.—This year has not been such a good one with me, owing to the drought completely spoiling the pastures about here. I commenced the year with three Stewarton and five frame hives. From them I got 240 lbs. of comb-honey and three swarms; also a lot of comb unfinished. The sections used were one and a half inch, and have not been by any means a success. Though no separators were used the combs were capped straight enough, but there were as many, if not more, pop-holes in narrow sections as in wide. Wasps are very plentiful, and doing immense damage to bees, fruit, &c. There seem to be two kinds of wasps; one is smaller than the common, and very dark yellow on the first two rings. Can anyone tell me if they have been noticed before? I forgot to say that my bees have not been to the heather this year. —G. D. CLARK.

NOTICES TO CORRESPONDENTS & INQUIRERS

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

AGNES THOMSON.—*Transferring.*—We advise you to keep your bees as they are until next season, and then to take a swarm and place it in the frame-hive. It is too late to transfer now, except by an experienced apiarist. You do not state the size of the octagonal hive. If it weighs about 25 lbs. gross you may remove the upper box of honey for your own use.

G. T.—*Casting out Young Bees.*—This not infrequently happens from nuclei. In some cases it is caused by the very young bees being 'crowded out' by their rather

older brethren in the middle of the day, when such fly and cannot return. We have also seen the old bees turn them out, but not in very large quantities; in such cases we have always supposed, that through some physiological failing or weakness of the mother, these are the weaklings of the hive.

T. H., *Pinxton.*—Your post-card suggests a number of topics for us to write upon; we shall be happy to gratify your wishes to the extent of our limits in subsequent numbers.

Fearful.'—*Foul Brood.*—The piece of comb forwarded is so small that a positive opinion can hardly be given, although we are very strongly of opinion that it has come from a stock so affected.

Aps.—*Condemned Bees.*—When driving two skeps, with the object of uniting the colonies there is no necessity to scent them. One can be driven, and the hive containing them placed over the second stock, and these bees driven in with the others, they will unite peaceably. Either of the queens can be caught as the bees ascend, or they can be allowed to settle their own differences. We are strongly averse to putting condemned bees upon foundation only, as the labour of drawing it out exhausts the bees so that by spring very few will be fit for work. If given frames of comb they will make good colonies for next season. They should be driven and put in the hive at once, feeding them continuously and as fast as possible.

Subscriber.—See reply to 'Aps.'

T. T. M.—Syrup for winter food made from crystallised pearl sugar would be preferable to that made from sample forwarded.

G.H.—1. *Salicylic Acid Solution.*—Salicylic acid 1 oz.; soda borax 1 oz.; water 4 pints. Salicylic acid will prove a preservative of syrup. 2. *Autumn Food.*—White lump sugar, 10 lbs.; water, 5 pints; vinegar, 1 oz.; salicylic solution (as above), 1 oz.; salt, ½ oz. 3. *Carbolic Sheet Recipe.*—1½ oz. Calvert's No. 5 carbolic acid; 1½ oz. of glycerine; 1 quart of warm water. The acid and glycerine to be well mixed before adding the water, and the bottle to be well shaken before using. The piece of calico should be steeped in the solution, wrung dry, and spread over the hive on the removal of the quilt.

G. Robinson.—Our reports bear testimony to the large honey yield in some parts of the north of England. If bee-keepers who have been so fortunate as to have had a large harvest of honey would postpone selling it for some months, the price realised would be much higher than it is at present.

Beeswing.—*Lee's Sections.*—Mr. Lee is at present engaged in a series of experiments as to the best method of using his sections. It will therefore be desirable to postpone the reply to your questions for a few weeks, when we will take an opportunity of recurring to them, and giving the information in a more complete form than it is possible to do at present.

Inquirer.—*Position of Hives.*—The position of hives very much depends on the surroundings. A south or south-easterly aspect is desirable; but the presence of hills, valleys, plantations, trees, hedges, walls, &c., would require the bee-keeper to modify it accordingly. There need be no hard-and-fast rule adhered to in this matter.

H. Lander.—*Winter Passages.*—These are very important, and should not be omitted, as without some such means of bees passing from comb to comb there is much danger of colonies perishing. The simplest and the most rapid method is to raise the comb, and resting it between two others, to make the required passage with the cutter or a pen-knife, and permit the exsected portion to drop between the combs on to the floor-board; the bees will clear it up without attracting the attention of outer bees. The method suggested by you for dispensing with winter passages is similar to the contrivance known to bee-keepers as 'Hill's device.' This consists of a number of curved strips of wood nailed to a crosspiece. When laid on to the tops of the frames it keeps the quilt up so as to allow the bees passage beneath it. It has the advantage of not disfiguring the combs, as winter passages are said by some to do; the latter are considered to be the more efficient.

Received from Mr. W. J. Green, Sudbury, Suffolk, circular with description of his 'Improved Imperial Bar-frame Hive,' a model of which was shown at the last quarterly conversazione of the B.B.K.A.

Received from Mr. J. M. Hooker a sample box of honey-drops, manufactured from his own honey. Exhibited at the Manchester Show, Stand 492, Section 2. The drops have a distinct flavour of honey, and are worthy of appreciation.

NOTICE!

Secretaries of County Associations are requested to note that the next Quarterly Meeting of County Representatives will take place on October 19th. Notices of Motions for this Meeting should reach the Secretary of the B. B. K. A. by Wednesday next, the 21st inst.

Business Directory.

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Editorial, Notices, &c.

HONEY-DEW.

Dr. Dzierzon, in his apicultural instructions to bee-keepers for the present month (September), says, 'In heath districts the bees may in favourable weather still have some pasture till towards the middle of September, otherwise they can only gather honey where honey-dew has formed, which this month is not rare on pines. But this generally brings the stocks more loss than profit; and the honey that is carried in itself is of bad quality, and is often the cause of dysentery when a long and dreary winter ensues.'—*Rational Bee-keeping*, p. 302. It may not, therefore, be inopportune at the present time if we endeavour to discuss the history, nature, and character of honey-dew, this being a question of the deepest importance to bee-keepers, as the presence of this so-called 'honey-dew' too often spoils the legitimate honey which has been gathered, frequently blights the prospect of their harvest, and disturbs their tempers.

To us moderns honey-dew is generally interpreted as 'a sweet saccharine substance found on the leaves of trees and other shrubs in small drops like dew. Two substances have been called by this name—one secreted from the plants, and the other deposited by a small insect called the aphis, or vine-fretter.' But to the ancients the substance to which they gave the name of 'honey-dew' had a very different and a much more highly exalted meaning. Honey-dew is an old-world term; it is a combination of two words indicative of sweetness and freshness. It was conjectured to be the purest nectar, which was distilled from the air in some miraculous manner. A spirit of poetry is called forth by the lofty virtues attributed to it. It sends us back to the time when the world was young—to the golden age—to the times of the Naïads and the Dryads, the Fauns and the Satyrs, when

> 'Jove once more, as erst the Poets told,
> Drips down each verd'rous robe a shower of gold,'—

when the hardy oaks, as Virgil has it, 'perspired the dewy honey' (*et quercus sudabunt roscida mella*), or, as Ovid sings, 'The yellow honey dropt from the green oak' (*Flavaque de viridi stillabant ilice mella.*) The poets at all times speak in rapturous terms of the excellency of honey-dew, they sing of the *aërii mellis cœlestia dona* ('the heavenly gifts of ethereal honey'); and the matter-of-fact philosopher Pliny appears to be in great doubt as to his designation of honey-dew, 'whether it is the perspiration of heaven, a certain saliva of the stars, or the moisture of the air purging itself.'—*Nat. Hist.* l. xi. c. 12.

Passing, by a leap, from the poetic and classic period, and following the history of honey-dew to after-times, we find the idea of the ancients that honey-dew is a deposition from the surrounding atmosphere continued to rule in the minds of bee-keepers for many centuries. We cannot, in our survey, find it in our hearts to pass by 'the father of English apiarians' (Dr. Butler), and we therefore consult him to ascertain the interpretation of honey-dew in his day and generation. We find in his *Feminine Monarchie* an estimation of it quite as enthusiastic as that of the poets sixteen hundred years before his time. He says:—

> 'It is purest nectar coming from above, which Almighty God doth miraculously distil out of the air. If conjecture might be admitted, I would judge it to be the very quintessence of all the sweetness of the earth drawn up as other dews in vapour into the lowest region of the air by the exceeding and continued heat of the sun, and then concrete and condensated by the nightly cold into this most sweet and sovereign nectar, which thence doth descend unto the earth in a dew, or small drizzling rain. . . The hotter and dryer the summer is the greater and more frequent are the honey-dews; cold and wet weather is unkind for them; much rain at any time, as coming from a higher region, washeth away that which is already elevated, and in the end it dissolveth them quite. . . They may happen at any time of the day, but for the most part in the morning, before it be light.'

One of the acutest observers of nature, Gilbert White of Selborne, writing about 180 years later, makes no advance in the elucidation of the nature of honey-dew. Writing on June 4, 1783, he says, 'Vast honey-dews this week. The reason of them seems to be that in hot days the effluvia of flowers are drawn up by a brisk evaporation, and then in the night fall down with the dews, with which they are entangled.' We are the more surprised at this theory of honey-dew, as he complains in another portion of his work that the honey-dews were so frequent as to deface and destroy the beauties of his garden. His honeysuckles, which were one week the sweetest and the loveliest objects that the

eye could behold, became the next the most loathsome, being enveloped in a viscous substance and 'loaded with black aphides or smother-flies.'

Dr. Evans, the poet, and author of the *Bees*, as we would naturally suppose, clings to the poetic aspect of honey-dew; but, unfortunately for his ideas, his lot was cast in an inquiring age, the world had grown older, and the eyes of science had peered into the arcana of Nature and exhibited facts in all their prosaic truthfulness. After saying that honey-dew should be compared to the temporary and wholesome sweats excited by severe exercise or excessive heat, he, with a mental wrench, with which we feel inclined to sympathise, says:—

'In a much greater number of instances the honey-dew appears to arise from a distinct cause—the attack of the aphides, or vine-fretters, which, instead of jaws like the locust, are provided with a hollow pointed proboscis, folded under the breast when the animal is not feeding. With this instrument they puncture the now turgid vessels of the leaf, leaf-stalk, or bark; greedily suck their contents, and expel them nearly unchanged, so that, however fabulous it may appear, they may literally be said to void a liquid sugar. The superior size of the *Aphis salicis* enables us to perceive, on looking stedfastly at a group of these insects feeding on the bark of the willow, some of whom elevate their bodies, and emit a transparent substance in the form of a small shower. They may also be seen distinctly, with a strong magnifier, on the leaves of the hazel, lime, &c., but invariably on their *inferior* surface, piercing the vessels, and expelling the honey-dew from their hinder parts with considerable force; and which might be received on paper or any other intermediate substance, the leaves below being in that case unstained. . . . Future inquiries must decide this question.'

Inquirers were close at hand. Mr. Curtis, in the sixth volume of the *Transactions of the Linnean Society*, informs us that the honey-dew is an excrementitious matter voided by the aphis, or vine-fretter, an insect which he regards as the cause of what are called 'blights.' He states that he never in a single instance observed honey-dew without its being accompanied with aphides.

Dr. Kirby, in his *Introduction to Entomology*, discourages the theory of honey-dew being a morbid exudation of the saccharine juices of plants.

'It may be,' he says, 'possible, but I may observe that in the course of more than thirty years, which I have attended to this subject, I have never met with any honey-dew which did not seem to be clearly referable to aphides as its origin; though, from the circumstance of their having been all swept away by the attacks of their natural enemies and other causes, while their saccharine excretion remains on the leaves for weeks on a dry time, and after having been moistened by a slight dew may have every appearance of being a recent morbid exudation, and may, even after very copious dews, fall on the ground.'

Most persons nowadays are ready to adopt the conclusion of Dr. Kirby. It is very rare that plants secrete any amount of saccharine liquid; but it is generally conceded that honey-dew is a deposit from aphides, and therefore we are prepared to agree with Dr. Dzierzon when he says that 'honey-dew' is an unsuitable name, and that it should be called 'aphis-honey.'

We propose to return to this subject in a subsequent number.

In Memoriam.

Mr. Duncan Stewart.

It gives us much pain to find it incumbent upon us to chronicle the decease of one of the most active members of the British Bee-keepers' Association and of the British Honey Company,—Mr. Duncan Stewart, which sad event occurred on the 12th September, at Harthill Hall, Bakewell, Derbyshire, whither he had gone to spend his holidays. Mr. Stewart was in his sixty-third year.

Mr. Stewart was for many years a Taxing Master of the High Court of Justice in Bankruptcy, and Receiver in Insolvency cases.

Mr. Stewart became a member of the B.B.K.A. in the year 1875; and on the late Rev. H. R. Peel taking office as Hon. Secretary, in the year 1878, he was elected as a member of the newly-formed Committee. In the year 1879 the Committee was reduced to nine members, and the system of election by voting papers as now followed came into force. Mr. Stewart was a candidate on this occasion, but failed to obtain a seat either in this or the following year. He was elected again on the Committee in 1881 by a substantial number of votes, and continued to hold his seat until the close of last year, when he retired from the Committee owing to an increased pressure of work in his profession. On the occasion of his retirement he looked forward to taking an active part in the Association's work at some future time.

Until the end of 1883 Mr. Stewart resided at Knockholt in Kent, whither he removed to Harcourt Terrace, Kensington. He has been one of the most hard-working members of the Committee. Residing in London, he always expressed himself as being bound to take a large share of the 'burden and heat of the day' by serving on sub-committees. He was extremely liberal towards all objects promoted by the Association, and never failed to add his name to its various subscription lists. His legal knowledge was of considerable benefit to the Association; and it, and bee-keepers generally, have lost one of their best friends.

Mr. Stewart took a warm interest in the great national Apiarian Exhibition in 1886 which was held in South Kensington in connexion with the Indian and Colonial Exhibition, and devoted much time to the preliminary inquiries and the subsequent arrangements. His heart was in this matter, and in a great measure bee-keepers are indebted to him for having worked out the details of an enterprise which proved so creditable to the British bee-keeping industry. At the Conference of bee-keepers that was held on August 4th an interesting paper by him was read on 'The Honey Market.'

On the occasion of the exhibition of Canadian honey he took much interest in the welcome that was accorded to the Canadian delegates.

At the formation of the British Honey Company he very heartily co-operated with the late Rev. H. R. Peel and others in their endeavours to place prominently before the British public the virtues of British honey. For some time past he has acted as Chairman of that Company, and to the last he has laboured assiduously to promote its interests.

The loss of so active, liberal, and intelligent a member of our community is, indeed, greatly to be lamented; and we trust that his bright example may incite many to follow in his footsteps.

ASSOCIATIONS.

HEREFORD HONEY FAIR.

REPORT BY THE JUDGES OF THE HEREFORD HONEY FAIR, SEPTEMBER 7TH, 1887.

The quality of the honey in all the exhibits was almost all that could be desired with very few exceptions, contrasting in a marked manner with the honey of the two previous seasons, when, and especially in 1885, very little honey was not more or less dark from honey-dew. The dark samples this year were of a rich and not a smoky tint, and almost certainly owed their colour to the class of flowers from which they were gathered.

In Class I. there were six competitions—a seventh entry, which seemed equal or superior to any of the others, was withdrawn from the notice of the judges, being disqualified by having the name of the exhibitor on each item. The first prize went to an exhibit which consisted entirely of 1-lb. parcels; the honey appeared to be of excellent quality, was very neatly put up, and there were six varieties of parcels. The second prize went to an exhibit which was not quite so neatly presented, and was seen, perhaps, to disadvantage, being rather crowded: it contained six varieties of parcels, including a fine series of 2-lb. sections. The third prize was taken by an exhibit very neatly placed on the stand and the parcels neatly got up; there were only two forms of parcels, and some of the extracted honey was rather dark. The other exhibits were not without merits.

In Class II., for extracted honey (clear), were twenty-four entries, and almost all were of superior quality. The exhibit taking the first prize was of extreme brilliancy and clearness, being distinctly before any of the others in this respect; it was also rich in colour, of good, thick consistence, and excellent flavour. The judges found less than the usual difficulty in placing this first. The second was only behind the first in clearness, and was of a much lighter tint—a high-class clover honey. The third was more like the first in general character, and was selected from two others with difficulty. The bronze medal of the B. B. K. A. was accorded to this class as being altogether very excellent. The first prize taken in Class I., to whom it ought to have gone, being disqualified to receive it. [The first prize honey in this class was extracted from standard frames in top storey and strained through flannel; the second prize lot extracted from shallow frames in top storey and not strained; several lots passed over were extracted from sections. A. W.]

In Class III. were fifteen entries (extracted honey partially or wholly candied). Much difficulty was felt in weighing the comparative merit of samples carefully candied, and others only slightly so. The first prize went to a partially-candied sample. The second to a very white and completely candied sample; and the third to a partially candied honey. The judges were, if anywhere, not so confident as to their judgment being sound in this class as in the others.

In Class IV. were seventeen exhibits, the majority of very excellent quality. The first prize went to twelve 1-lb. sections, of great transparency, well finished, and sufficiently thickly capped to have a nice white appearance without being propolised or otherwise injured in appearance by being left too long on the hive—the prize-taker is a cottager. The second went to six very perfect 2-lb. sections, in which the only defect was a faint smear or two of propolis. The third was accorded to an excellent sample of 1-lb. sections.

In Class V. were six entries. One was a very handsome piece of comb, but was really a frame out of a frame-hive, and not strictly a super. Another was a bell-glass well filled with excellent comb-honey. There were also two boxes and one miniature skep, these were all well filled and with excellent comb; each, however, had some discoloured comb in the centre, either from the bees travelling over it, or, possibly, from its having at one time contained a little brood. These seemed the most satisfactory supers, and as their merits were otherwise very even, the first and second prize went to the two heaviest.

In Class VI., for cottagers, were four entries, though one was a very nominal one, the other three were excellent. The first prize was taken by one that exceeded the second as the second did the third, in extent, in variety of parcels, and, to some extent, in neatness of packing and display; in each the honey seemed of excellent quality, as in the other classes.

The judges acted as bee-keepers of experience, and not as chemical experts. The time allowed for the work in hand showed that no more than this was expected; but nothing came to their notice to suggest that any more critical examination than they accorded it was required by any sample of honey exhibited.

SCOTCH EXHIBIT OF HONEY.

A fine exhibit of honey was staged on Wednesday, 7th September, in St. Andrew's Hall, Glasgow, in connexion with the Glasgow and West of Scotland Horticultural Society's Autumn Show, the exhibitors being Messrs. William and John D. McNally of Glenluce and Springburn, whose names are well known in the bee-keeping world of the present day. These gentlemen exhibited a stand containing seven cwt. of honey taken from the bees in various forms. The sections looked just perfect, were well filled and of good colour, and were certainly shown to best advantage in Woodley's new section cases. In the centre of the stand were the words built in honeycomb by the bees 'God Save our Queen,' which was greatly admired by the public, and many were the conjectures as to how it was done. At either end of the stand were two observatory hives shown in full working order, stocked with various races of bees. We would compliment the Messrs. McNally on their method of placing their honey before the public, and are pleased to hear that they find ready purchasers for it at a remunerative price.

HONEY-DEW.—A writer in a Suffolk newspaper says that some singular results of the hot weather through which we have passed were to be seen even on the dust-laden hedgerows in the shape of suspended drops of transparent honey-dew. The leaves of the lime and other trees are sticky and glossy with the abundance of the same product. It is a grand time for the bees and ants, and other honey-loving insects by day, and for the moths by night. To an entomologist a lime-tree is naturally 'sugared' for him. He has only to wait with his lantern (or use that of the moon), and his captures may be made by scores. It is years since such a manufacture of natural honey was made; perhaps not since the long hot summer of 1868. The appearance of this product always goes with hot summer weather.

A HORSE ATTACKED BY WASPS.—On the evening of the 14th inst., Dr. Proudfoot, Kirkcaldy, had been visiting a patient in the neighbourhood of Dunnikier, and, along with his coachman, was driving home, when the horse, travelling in the middle of the road, trod on a wasps' nest, and was immediately attacked by the insects. Becoming greatly irritated, the animal kicked furiously, and both the doctor and his coachman were thrown from the carriage, the former being severely cut about the head and face. The vehicle was broken to pieces.

A GRIZZLY BEAR AND THE BEES: SCENE IN A CALIFORNIAN APIARY.—The Hutchinson brothers have a large apiary up at Victor Tejunga, says the Los Angeles (Calif.) *Express*. It is an isolated place, far

from real estate booms and the haunts of men. But it is a good place for bees, and there, as a rule, they toil unmolested except by their owners, the Hutchinson boys. The country is romantic. The quiet life of the little rural retreat was turned into the greatest excitement last Thursday night. While the Hutchinsons were asleep, and dreaming of the great sums of money they would make this season, a stranger entered the camp. He was not slow in making his presence felt and heard. The sleepers were suddenly awakened by sounds that suggested a small cyclone raging among the bees. One of the men got up, looked out of the window, and what was his consternation and terror to see the faint outlines of a huge, brown-coloured monster upsetting the bee-hives, and working destruction with property that required the toil and economy of a number of years to accumulate. The surprised spectator hastened to his brother's bedside, and told what was going on in the apiary. The two rushed out, one taking his rifle. The bear was evidently hungry, for he made savage lunges at the boxes filled with delicious honey. He would take a few mouthfuls out of one frame, and then go for another. The Hutchinson boys concluded that if they did not act on the instant the bear would soon leave them without an occupation. The gun was levelled and discharged. The ball found its way through the thick hide of bruin back of the left shoulder. It was evidently almost a 'centre shot,' for the animal fell. But he remained on the ground but a second. He arose, enraged with pain, and made frantic plunges at the nearest hives. Meanwhile the men advanced a little. The bear caught sight of them and made a rush at them. When within twenty feet of where they stood, his progress was arrested by another leaden messenger. It struck a vital part, and once more the huge bear fell. This time he did not get up. A third ball was put into his side, which caused his death. Upon examination it was found to be a grizzly cub about two thirds grown. Next day he was dressed and weighed. The scales tipped at 700 lbs. This is the second or third bear ever killed or seen in that section.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts (see 2nd page of Advertisements).*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

FOUL BROOD AND PROFITABLE BEE-KEEPING.

[1266.] I have read with great interest all that has been said in your *Journal* upon the subject of foul brood, and your leading article in a previous number induces me to give my experience of this fearful scourge to bee-keepers, and tell how, two and a half years ago, I exterminated it in this neighbourhood by doing just what you now advise.

In the early days of March, 1885, I found that one of my seven bar-frame hives was suffering from what I believed to be foul brood, and on a piece of the infected comb being submitted to Mr. Cheshire for examination he confirmed my fears. I at once got half-a-dozen bottles of phenol from Messrs. Neighbour & Son, prepared specially for the Cheshire cure, and after having taken away as far as possible all the bees' stores of honey, commenced to feed my seven stocks with syrup prepared exactly according to Mr. Cheshire's printed instructions. The bees would not take the phenolated syrup from a feeder, so I had to pour it into empty combs and place them at the back of the hive; and so I persevered for nine weeks, day after day physicking my seven hives; but I was disappointed to find that not only did I not cure the hive first infected, but the disease spread to the six others—no doubt by my carrying the germs upon my hands in manipulation.

The phenol at once checked the disease, and the hives became very strong, but a few infected cells constantly appeared in every brood-comb, and when honey began to come in they got worse and worse. I then decided to destroy the bees, frames, quilts, &c., and disinfect the hives, feeders, and smoker. In order to thoroughly accomplish the latter, I had a tin box made large enough to contain a complete hive, and filled it with a strong solution of carbolic acid and water, and then soaked each hive in this solution for two hours. After this the feeders, smoker, &c., were treated in the same way, and then the tin box was filled with clean water, a fire lighted under it, and each of the hives immersed and boiled for ten minutes.

The next thing was to prevent the new swarms, which I intended getting, being infected by other bees in the neighbourhood, which I knew were diseased. Although a busy man with little time to spare, I decided to take a couple of days' holiday, and visit all the bee-keepers in the neighbourhood, and see what could be done to stamp out the enemy. During those two days I believe I examined every hive for miles around, and at three places found foul brood; and, after explaining the disease and its effect to the owners, induced them to let me destroy the infected stocks and burn the hives, two of which were straw skeps. Since then I have not been able to find a case of foul brood in our neighbourhood except a doubtful one, and the old woman who owned this skep allowed it to be at once destroyed.

I believe such action as I took to be the only way to stamp out foul brood. My experience and that of others is that phenol checks the disease but does not cure it, and that healthy stocks soon become infected if there is any communication in any way between them and an infected stock. I should have mentioned that I put the stock first infected into a clean hive before giving it phenolated syrup, and shortly afterwards I did the same for the other six. I used a great many bottles of phenol—the exact number I do not recollect, but I think about a dozen and a half—so in every way I gave the cure a fair chance.

I notice also, in your issue of September 8th, a complaint from 'Sherborne, Dorset,' of the unprofitableness of bee-keeping. I don't wonder at his complaint, if he seriously thinks that the results he has mentioned are anything like as good as those obtained by moderately successful bee-keepers. I do not know of a district outside large towns where intelligent bee-keeping upon modern principles could yield such a poor harvest. We depend here upon white clover and other wild flowers, having no heather, and I can with confidence count upon 100 lbs. of run-honey per hive, after leaving enough for winter stores. Last year I averaged 127 lbs. per hive, and I have not used any sugar for spring or autumn feeding for three years, except for stocks made up of driven bees. Of course I prevent swarming, and take care to have young queens at the head of each colony, and I give each hive from thirty-eight to forty frames of standard size.

To be really successful with bees, as with all other pursuits, one must devote time, thought, and study—an hour before breakfast every fine morning during May, June, and July, with your busy little labourers will be conducive to your health, and if you are moderately

skilled do all that is necessary or at all desirable for a dozen stocks; and if you don't get 9 cwt. of honey there will be something wrong in your management. If you have leisure during the day so much the better, but many, like myself, are engaged in business almost all and every day.—J. H. Rogers, *Glyncoed, Llanelly.*

FOUL BROOD.

[1267.] In my last communication on the above subject I promised to give the results of the treatment of a stock with phenol belonging to a friend. I am sorry to have to report that it was a failure, although I cannot myself consider it absolutely so, as, in consequence of the very cold and wet weather we had just at that time, it was impossible to open the hive regularly, as, the bees refusing to take it freely from the feeder, it was essential to do. It will, perhaps, be remembered that in my last letter I expressed the opinion that it was to the use of phenol in the spray-diffuser to which I owed freedom from disease in my apiary; but unfortunately for me, shortly after writing that letter, I had to alter that opinion, for on June 3rd I found the disease in two stocks, and immediately commenced to treat with phenol. Both hives rapidly improved, and one of them gave me a crate of sections, and is now one of my best colonies. The other hive, which was rather a weaker one, while they were being treated made several attempts at queen-raising, but the cells were cut down as soon as discovered, for being only a small colony I did not want them to swarm; but such was evidently not their intention, for having left one queen-cell to see what they would do, the young queen was hatched and the old one destroyed, although, on turning to my register, I find she was only hatched on July 12th, 1885, and was to all appearances quite healthy. I should say that the young queen was not hatched until all signs of the disease had disappeared, so that I could not suspect the old one of being diseased. The stock being the only small one I had was used for exhibition purposes at our local flower show, at which I had the valuable assistance of 'Amateur Expert,' who could answer for the entire absence of any signs of disease.

I now come to what is to me a peculiar case, for examining on May 28th a stock which had been transferred, I found what appeared to be chilled brood, but, being undecided which it was, I cut out a small piece of comb and forwarded it to Mr. Cheshire, but unfortunately I got no report from him. I waited just over a week before I reopened the hive, and when I did so there was no mistaking what was the matter with them, for several of the frames were one mass of putrid matter which could be smelt some distance off, and the bees seemed to have lost all life and energy. The stock was a good strong one, but having the other two colonies on hand I hesitated whether to destroy or try to cure them, but decided to do the latter; so I put on a slow feeder, and fed for three weeks with phenolated syrup, keeping during that time the entrance and ground in front of the hive frequently sprayed with carbolic acid, after which the feeder was removed, and the hive left untouched until August 20th, when it was again opened, and after a careful examination only two cells containing any signs of disease could be found, whilst in the frames in which breeding was going on the brood was without exception quite healthy, and to the best of my belief with the same queen as before.

The result of my observations certainly does not to me point in the same direction as Mr. Ward's, given in a recent issue, although there must be a certain amount of suspicion attaching to the second case mentioned. Mr. Ward seems to overlook the fact that Mr. Cheshire distinctly says the queen *must* be removed if there is reasonable ground for believing her to be infected and a healthy one substituted ere a cure can be effected. I quite agree with Mr. Ward as to the difficulty we have to say whether a queen is diseased or not, and it would no doubt be to our advantage in the majority of cases to at once give a young healthy queen, that is, if we do not, Mr. Editor, carry out your good advice and immediately stamp out the disease by destroying the stock as soon as it appears. I am happy to be able to report that at present I do not know of a case of the disease in this neighbourhood; but should it break out again in the spring, in spite of all precautions, I shall make short work of it, for unless one has plenty of time to spare I do not consider the risk and the labour involved worth the object aimed at.—J. T. Harveyson, *Finchley, September 15th.*

NOT FINDING QUEEN.

[1268.] Mr. Edditar, I beant much of a skolard, but I do read your *Journal* every week as I do keep bees, and I do get a good bit of honey, and I had 3 cwt. this year, all from bar-frame hives, but I do agree with your letter (1241) in this week's *Journal* about finding the queen. I do now a mans who do keep a lot of bees, an do drive bees in autumn for hisself, an do rear his own queens, an do mind bees for other peoples, an he do try for sertificate for expert, but because he could not find the queen in time he could not get sertificate. The mans who zamined him did ask him not one question about bees, but told him he must come again because he cudn't find queen. Why didn't the zaminer ask him what he knew about bee-keeping an then he could see what he knew? Is finding the queen everything in bee-keeping? If so, let our zaminers for third-class expert, as soon as the queen is found, give the candidate a sertificate as expert whether he knows anything about bee-keeping or not.—Tam Shon Catti.

NOT FINDING THE QUEEN.

[1269.] I was very pleased to see an article in the *B. B. J.* of the 8th inst. on the above subject. I have always been greatly surprised that the B. B. K. Association should make the finding of the queen a test to the examination of an expert, whereas the examiners must know that it is generally a matter of chance. At the Royal Agricultural Show at York I noticed that Mr. S. Baldwin, expert-in-chief, failed to find the queen until he had driven all the bees out of the hive; he afterwards discovered her among the driven bees. I then asked him if he considered the finding of the queen a fair test at the examination for an expert's certificate. I forget what his answer was, but I believe he turned it off, as the question was not one of practical utility. Why not allow the examiner, who must be a practical man, to base his decision on the way the candidate performs the operation? Under the present system it is possible for any muff to find the queen immediately, while the expert-in-chief might fail.—Icardus, *Kirk Merrington.*

BUMPING.—HONEY BY THE HUNDREDWEIGHT.

[1270.] Last year I reported my single attempt at bumping a failure. Subsequently discovering the cause I promised myself another trial during this season. About a fortnight ago I went to secure a couple of lots of condemned bees, and proceeded to drive the first in the ordinary way. It was a late swarm and had not half filled the skep with comb. The result was that instead of leaving the skep the bees merely ascended just above the partially built out combs, and then promenaded very decorously round and round the skep. Not without a little trepidation I resolved on bumping. Complete success! Owner of skep immensely pleased. Myself ditto. I have since bumped thirteen other lots, and

with such satisfaction as to determine to confine myself to this method in future.

One very great advantage that I find in bumping is that I can do without my smoker. That provoking article is now for sale. Except for driving purposes, I had ceased to use it in my manipulations. Its place in my apiary is taken by the carbolised cloth. This is how I use the latter in bumping: I stand behind the skep and lay the cloth in folds on the floor-board across the entrance. I now take hold of the uppermost edge of the cloth and bring it half way around the edge of the skep. Still keeping hold of it I turn up the skep, and thus get the cloth to fall over it. I then blow through the cloth and allow it to remain on two or three minutes, after which the bees are pretty sure to be in manageable condition. Of course the cloth comes into contact with the combs, consequently I take special care to wring the cloth dry. I bump before removing the cloth.

I confess that there is a drawback in this method to those who, like myself, intend, at some date in the distant future, to venture on an examination for third-class expert. Owing to want of practice, I fear that in that eminently satisfactory test of expertness, bee-driving, I shall be found 'not in it.'

I wish, sir, that, for the well-being of the unsuccessful ones, you would suppress all reports which record a yield of 100 pounds and upwards per hive. The amount of evil they do is incalculable. The effect of them on those who are only able to secure twenty, thirty, or forty pounds per hive, is not at all inspiriting. The 100-pounders are not, I suppose, one per cent of the subscribers to the *British Bee Journal*, and yet these one per cent are allowed, through the columns of the *Journal*, to stir up any amount of bad blood in the breasts of the ninety-nine per cent. Every Thursday these reports make about 10,000 otherwise well-disposed persons jealous, morose, savage, and highly dangerous—dangerous to themselves and to the country. Could you not act on my suggestion?

My three best hives have yielded me about forty pounds per hive—all they contained. I console myself by believing that the return would have been greater had I been able to pay more attention to them and had Glamorganshire been favoured with a little rain during the summer. I hope to goodness that I shall not see a hundredweight report from Glamorganshire this season.—WELSH NOVICE.

[Please refer to advice given by J. H. Rogers on a preceding page, and it may be that at a future time you may arrive at the coveted weight.—ED.]

A FAMOUS IRISH BEE-KEEPER.

[1271.] Perhaps one of the most advanced Irish bee-keepers we have is our friend Mr. William Ditty, of Newtownards.

Visiting the North-east of Ireland's annual show of bees, &c., held on 19th August, in the Y.M.C.A. Hall, Wellington Street, Belfast, I made the acquaintance of Mr. Ditty, who was acting in the capacity of a judge; and having a day or two to spend in Ireland, I resolved to visit Mr. Ditty's apiary, along with another noted Scotch bee-keeper, Mr. William McNally, of Glenluce, Scotland, who was exhibiting some goods at the Belfast Show. Leaving by rail I reached Newtownards on the 20th, a beautiful day with bright sunshine overhead. Making some inquiries, I learned from a friend that Mr. Ditty was head-cashier in Lord Londonderry's Estate Office, where I found him. After a friendly greeting, he asked leave off for a time, and we proceeded to his house and apiary a mile from the town, and gleaned in a brief way his success in bee-keeping. Mr. Ditty is a young man, about twenty-seven years of age, and resides with his grandfather, his parents both dying left him an orphan at a very early age. He entered the office of Lord Londonderry as boy clerk, and after eleven years' faithful service now holds his present high position. He is a most enthusiastic bee-keeper, and has between twenty and thirty stock hives, and a dozen or so of nucleus hives. His bees are mostly of foreign strain, and his hobby is working for extracted honey. The apiary is neat and well arranged, and the hives, which are of the frame type, are all his own manufacture, and I may add reflect great credit on Mr. Ditty. The locality abounds with sufficient natural flowers for the bees, and yields large quantities of honey, Mr. Ditty's hives this season giving him an average from sixty to eighty pounds per hive. He is not a timid bee-keeper, and manages his bees entirely without smoke. After a rather quick run over the apiary we retired to the workshop where all the appliances, &c., are to be seen in great variety. After partaking of a substantial dinner we made for the station and received a sample of honey-wine made by Mr. Ditty in 1885, which was really excellent. Altogether my first visit amongst the Irish bee-keepers will not soon be forgotten. I wish him continued success, and hope to have the privilege of visiting his apiary again, meantime—AU REVOIR.

NORTH-EAST OF IRELAND BEE-KEEPERS' ASSOCIATION.

[1272.] Being an exhibitor at the above show this season I must urge my protest against a practice that should not occur in any well-managed association. The grievance I refer to is this: all the exhibitors' names are known to the judges while they are awarding the prizes, and this should not be the case. On the prize list and schedule every competitor's name is printed with the number of his exhibit, &c., which is supplied to the judges and the public previous to judging, price 2*d.* per copy. This arrangement is very good were they withheld from both judges and the public until the prizes were awarded. I hope the hon. secretary will see to putting this matter right by another year.—JOHN D. MCNALLY.

REMOVING MIDDLE SECTIONS.—(1214.)

[1273.] I should be sorry to think that Dr. C. C. Miller believes the bump of combativeness to be so largely developed in the *Journal's* correspondents that it was necessary to commence his letter by stating that he did not want to pick a quarrel with any of them,—no, not a bit of it. I am sure he did not think that, and I am equally sure he will believe me when I state that I have no feelings of jealousy whatever in bee matters, being at all times anxious and willing to impart any of my experiences to any one and every one who cares to know them.

When I stated in the *Journal* that I did not think our American cousins could give us much start in bee-culture I in no way wished to infer that there was anything but friendly rivalry between us, but merely to point out that, judging from the extracts given by 'Amateur Expert,' the systems adopted in America were, in my opinion, no advance upon those practised in this country and from time to time put forth in the *Journal*; and I still think so.

In bee-culture, as in most other pursuits, there must ever be differences of opinion as to the best road to success by reason of the very nature of the circumstances under which bees are kept and the ever-varying conditions of soil, climate, and flora, immediately surrounding the apiary. Dr. Miller knows as well as I do that the fact he mentions of one bee-keeper taking 30,000 lbs. of honey in a season by adopting one method, in no way proves that more and in better condition would not have been taken by some other method.

All I wished to say was that I considered the taking away of the middle sections before the others were completed was not a step in advance, but the reverse. I think I gave my reasons, viz, that it was a great waste

of time; it broke up the cluster of bees when comb-building; the sections were not so fully completed and sealed, and the sealings were thinner and the sections more liable to 'weep,' and, altogether, it gave a great deal of unnecessary labour, both to the operator and the bees. I am now glad to see that Dr. Miller does not follow the plan but adopts a more advanced system. I read with great regret that Dr. M. had had such a universally poor honey season, but hope there has been yet time to make up a little.—F. Boyes.

DARK HONEY.

[1274.] I have no reason to complain of the quantity of honey my bees have gathered this year, but should have been more pleased if it had not been so dark; some of it more like old-fashioned treacle, nearly black, such as I knew in my school days; the flavour is very good, but the colour is not appreciated. Now, if it is possible by any means to improve the colour I shall be very glad to do so, and shall feel greatly obliged if you can tell me the best way to go to work to accomplish it. It is the general complaint in this neighbourhood; mine, I think, is not a singular case. I have a large super on each of my hives weighing abont twenty-four lbs. of good colour and another on the top of that, same weight, and the honey is dark indeed; the top one was nearly filled when I put the other on below it. The dark is so thick that I am obliged to set the pan in hot water to strain it. By advising how to remedy the same I shall feel greatly obliged.—G. R., *Diss.*

[By boiling the glasses or jars containing the honey in water, the colour will be slightly modified.—Ed.]

JUDGING.

[1275.] The complaints made from time to time in the *B.B.J.* of mistakes,—unpardonable mistakes, in judging honey, point to a real grievance demanding prompt removal. The other day a couple of gardeners were instructed to 'look' over the honey and award prizes after they had finished the vegetables, &c. And they actually had the assurance to do so. Now, without for one moment insinuating that they were actuated by any other motive than that of being obliging, yet I cannot but think they, and others 'of such ilk,' might derive great benefit from meditating on two old cautionary proverbs, viz., 'Let no cobbler go beyond his last,' and 'Fools rush in where angels fear to tread.' But, seriously, what would they feel and say if two bee experts were appointed to decide the merits of their choice productions? The vials of wrath poured out, and justly, too, upon the devoted heads of the poor bee-masters would be worse than all the formic acid of all the most vicious bees. In the particular instance that prompted these remarks, the judges were certainly befooled by the case, for they not only did not taste the honey, they never even removed the case; and a splendidly-worked lot of sections in a sober case had to submit to the indignity of being ticketed 'second.' Let the County Bee-keepers' Associations look to this matter, and without being impertinent, suggest FAIR conditions of competition, and offer to supply properly qualified judges at a regular scale of remuneration.—Fairplay.

A BARROWFUL OF SLABS OF HONEY.

[1276.] I have been waiting for some time to see a bit of advice in the *Journal* to the humble bee-keeper—the poor labourer who cannot dip his hand into his pocket and send off for expensive hives, apifuge, scrapers, and the thousand and one articles which you are told, if you buy them, make bee-keeping a success, but which in reality make it an expensive hobby. I have, about two months ago, with the aid of a friend, taken two lots of bees with their honey. In one of them we took out a barrowful of solid slabs of honeycomb, two feet deep, out of an old flue in a peach wall. It was an eye-opener for me, I assure you,—here was simplicity itself, and with such results and such delicious honey. Acting on the hint thus given me by Nature herself, I intend to build a brick hive for a few pence to super at the side, and one to super at the top. My supers are made—for I have used them this year—at a cost of sixpence. I take a two-dozen canned fruit or salmon box, costing twopence at the grocer's, put in two false ends, and the thing is done; cover the frames up with the usual packing, and on the top a roofing slate; these I have used successfully as ekes and supers for flat-topped skeps. Going back to our exploit with the stocks in the wall, our weapons of warfare were a smoker charged with brown paper, a pint of carbolic acid costing ninepence: of this we used about a wine-glassful in half a gallon of water, and a whitewash brush to sprinkle it on the wall. I might add that the bees were successfully transferred, together with the brood-combs, into hives, and are doing well.—A Lancashire Bee-keeper.

EXTRACTING FROM BROOD-COMBS. (1204.)

[1277.] It is quite clear that some of your correspondents have misunderstood my remarks on this subject. I will, therefore, with your permission, Mr. Editor, endeavour to put myself right with them.

Now, when I wrote 'Extracting from Brood-Combs I imagined—foolishly, no doubt—that 'brood-combs would be understood to mean combs containing brood. Such a thought never entered my mind as that it would be taken to mean all combs which had at some time or other been bred in. But so it has been, and I must here disclaim any intention of implying that honey extracted from such combs was not pure in the ordinary sense; indeed, I thought it generally admitted that such combs were tougher and better than new ones for extracting purposes.

Reverting to the letter of 'G. T.' respecting the liquid extracted from combs containing unsealed larvæ, I can only repeat that I have often found in close proximity to unsealed brood a thin, watery liquid, which, on giving a little shake of the comb to dislodge an odd bee or two, has flown out like so much water. This I have looked upon (probably erroneously) as a thin preparation of honey and water placed there by the bees for feeding purposes. Whether I am right or wrong in this supposition, it is clear that if this preparation be extracted and mixed with honey such a mixture cannot be pure honey, and, as I stated at first, the watery element was likely to ferment and spoil good ripe honey.

I had not the remotest idea that in mentioning the source from whence the 'water' was drawn anyone would suppose that I was trying to run down extracted honey. My object was solely to give a limit to the inexperienced lest they should spoil the quality of their honey by mixing with it a highly fermentable substance and to discourage the too close extracting of honey from hives, and especially from combs containing brood, because I had seen nothing but bad results attending such practices. I have found that when hives were in a prosperous condition with abundance of brood there was always plenty of unsealed and unripe, or thin honey; and if this be wanting much of the brood never reaches maturity, but either dies or is destroyed, the juices extracted and the skins ejected or carried away by the bees. It is probable that this unsealed, watery honey is not only necessary food for the larva, but also helps materially towards keeping up that moist atmosphere in which the brood seems so much to prosper. I therefore think that the too close extracting from brood-combs is anything but judicious; if we extract too much honey from a hive we must either give it back again or destroy

its prosperity, but I do not for one moment wish to force my opinion on others; if they think otherwise, by all means let them follow their own opinions. Kindly remember that when I state brood-combs I do not mean combs which have been bred in the year before and placed in a doubling box on the top of the hive proper, but combs in the brood-nest which are being used for breeding purposes and if these get filled with honey so that there is no room for the queen to lay, as 'G. T.' argues, then I say there is mismanagement somewhere. The instinct of the bees is to store honey *above* the brood-nest, and so long as the sections or doubling combs are properly attended to there is no fear of the queen being crowded out below, especially if she be a vigorous one laying 1000 eggs a-day.

And now, 'G. T.', I have done with this subject, but one word ere we part. I never heard of any one extracting from skeps, what I said was that his remarks about the queen being crowded out and having no cells in which to lay her eggs applied only to skeps and not to expansible bar-frame hives.—F. Boyes.

P.S. I do not consider that 'G. T.'s' hives are by any means strong ones if he can winter them on eight frames.

MEMS BY 'WOODLEIGH.'

[1278.] *Carbolised Cloths.*—The varied reports respecting carbolised cloths for work in the apiary are on par with other mundane affairs, some succeed and some fail. Having used the cloths all through the season without a smatch of carbolic flavour, or even a taint strong enough to be detected by the keenest olfactory nerves, I may be pardoned for laying my *modus operandi* before my brother apiarians. Mix in a basin a few drops of acid in water, then well saturate your cloths (of, say, calico, about the size of your quilts), then *wring* them as dry as you can, so that you have no dropping; roll back your cover from section-crate, letting your carbolised cloth take its place, then gently raise same and blow a little smoke in; prise it with screwdriver or strong knife to break the propolised joint, and then let your other carbolised cloth cover your bottom crate or the frames, as the case may be; brush off the bees from bottom of crate with a feather and proceed to remove your sections, shaking the few remaining bees into an empty skep, and throw same on the alighting-board. I generally take the crate of sections to a quiet part of the garden to remove them, so that I am not troubled with other bees; and if they get a scent after a few crates have been taken off, I go to another corner, quite away, and proceed as before. I find the carbolised cloths save a great number of bees, as it is impossible to take off and change position of crates without crushing some; but with the cloths they are simply driven down out of the way, and it does not interfere with the ordinary routine of their work; and I always like to start on the job about nine o'clock in the morning, and get done by two or three in the afternoon. And, again, the cloths are capital things when extracting to prevent robbing during the time you have your hives open. Remove your quilts with a jerk, and spread your carbolised cloth in its place; then blow some smoke in under it, and the two agents will soon start the accustomed hum, when the bees will begin to look after No. 1. I find cotton rag or touchwood good fuel for smokers, the only objection to the wood is that small coals will sometimes get into the bellows and burn holes where they are not wanted.

Bumping.—I am sorry for the failure of our 'Canterbury' friend with bumping. I think he bumped too hard, and smashed the combs. I find in the new stocks the combs break off at the hive better than in old stocks, where with every care they will sometimes break half to three quarters of an inch from the hive; and if the operator is not quick at the job some of the bees get into the running honey. If 'Canterburian' smokes his hives a few minutes before he begins, then turn them up on a table or bucket, give some smart raps to break side attachments of the combs, then bump in direction of arrow in the illustration given in *B. B. J.* early last month, he will find, if the combs are built straight across, that they will all break off well; then brush your bees off with feather into an empty skep, putting your combs into a vessel, with a cloth to cover over to keep flying bees from the honey, then return your hive to its original place, first shaking your driven bees back into it, if no honey is left; but if there is any honey at crown of hive, shake your bees on the stool and turn the hive over, and, if possible, leave them till night, when you will find them clustered in the top of the skep like a new swarm.

Position of Combs.—I have paid particular attention to the position of combs built in skeps, and some I find parallel, some with combs towards the entrance, and some mixed, and others in a crescent or concave shape, with ends of centre combs converging towards the entrance, so that I do not find any particular style in vogue with the industrious little architects, and nature gives us no guide as to the proper position of our modern frames. For convenience in manipulating the Combination hive is *par excellence*, and, as far as my experience goes, my bees are as healthy in one as the other, and I have a number of hives on both parallel and right-angled principles, also a few with the old wood crown-boards, in which bees winter as well as those in chaff-cushions, and come out in spring in better condition; but I must add, they are well covered with chaff and wraps over the crown-boards.—Woodleigh.

Echoes from the Hives.

Aldridge, Walsall, Sept 10th.—The last season, although almost deprived of its chief stay, the white clover, in consequence of the drought, must be classed as good. Spring was very backward, May being an especially trying month. But, then, it is not always May, and June 4th initiated such a spell of tropical weather as has not been experienced here since 1868; not the proverbial English summer of three fine days and a thunderstorm, but for fifty-four days there was not rain enough to lay the dust. Hawthorn very late, white clover very early, and beans, came in together, and by July 20th honey-gathering had quite ceased with me. Nevertheless, a highest yield of 56 lbs. for one stock is for the black country very good. Showers have now refreshed the thirsty land, and stocks seem in a fair state for winter. The season has been one of constant work and anxiety; now, however, we may rest and be thankful,—especially the latter.—Edw. Joberns.

Whitehaven, 12th September.—I started last year (August 5th) with a second swarm. Did the usual autumn and spring feeding. On June 22nd I got a strong swarm off; on June 27, July 5th, and 29th, took off twenty-one 1-lb. boxes on each date. Took first prize for honey at a local show. Sent both swarm and stock up to heather and have taken twenty-one boxes off each, the swarm being now very heavy. I have nine bars in each hive. What I want to know is, Are nine too many for my bees to winter on? Never having seen the inside of a hive until I got my own you will see that I am very much amateur.—J. A. Jackson.

[Confine, by means of division-boards, the number of frames covered by the bees.]

Springholm, Dalbeattie, September 12.—I was agreeably surprised to see in the *Journal* what a good opinion you had of the piece of honey-comb I forwarded to you. You will be pleased to hear that bee-keeping in its improved form is getting to be very popular in the stewartry, many having been induced to join the ranks through what they saw and heard at the Horticultural Society's Show at Dumfries last year and also at the local flower shows since then. The honey harvest here has been (with me at least) a partial failure owing to the dry season, which fairly burned up the clover and other pasturage, although from

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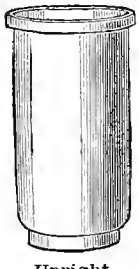

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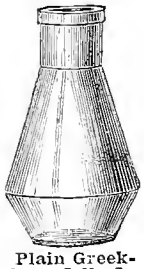

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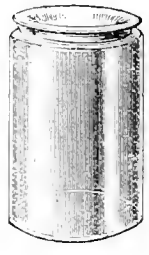

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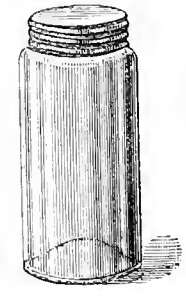

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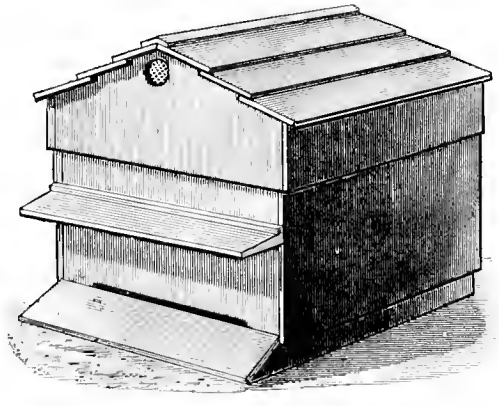

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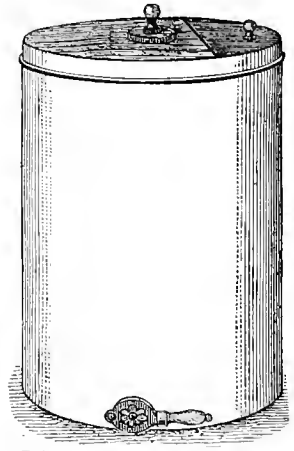

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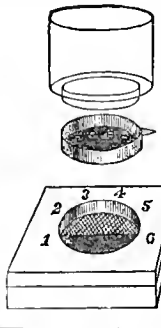

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our local papers I see that they have been very successful in the border counties of Scotland, one bee-keeper having taken as much as 7 lbs. per day off one hive for I forget how many days together. That, I think, was pretty fair, and as the bee-keeper was 'a wearer of the cloth,' we cannot suspect him of drawing the long bow. I have driven a good few skeps for cottagers this year, and find that the yield is about an average one, though in some cases the bees seemed to be 'living from hand to mouth.' I may mention that I started bee-keeping about three years ago with a hive of driven bees, which I drove myself, never having seen driving done before, and now my stock consists of ten frame-hives and two skeps, besides a few hives of driven ones of this year. I make all my own hives and appliances except sections, and find that it pays to do so, as the carriage would be no trifle in this part of the country. The way I was first induced to start bee-keeping may perhaps amuse you, and show how infectious the bee fever is. A neighbour of mine who kept bees in skeps had seen a frame-hive somewhere, and wished to have one, but did not know how to get it, as we have no hive-dealers here; so having seen an article on hive-making in a magazine, I offered to make him one, which I did satisfactorily I hope. Having got his hive, he was not much better, as he knew nothing about managing bees in it, so I got the most of that work to do till he got used to it; and from working with the bees I of course caught the bee fever, and could not rest till I had bees of my own, which have given me a great deal of pleasure in managing them, a fair quantity of honey, and last but not least a large amount of stings; in fact I have got so many stings from my own and other people's bees that I am quite inoculated, although I see one of your correspondents thinks that inoculation is a farce. Such has not been the case with me at any rate, as when I started bee-keeping first, if I got stung the effects lasted for nearly a week, and now I can get ten or a dozen at once, and in ten minutes I could not show you where I had been stung. Looks rather like being inoculated, doesn't it? I may mention that I have taken the *Journal* from the first, and attribute to it the success which I have had. Besides the information which it contains, I like the amusing contributions of some of your correspondents, and trust that you and they may long be spared to furnish us with information and amusement combined.—JOHN J. W. CURRIE.

NOTICES TO CORRESPONDENTS & INQUIRERS

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

R. G.—*Dead Queen.*—I received a dead queen reminding me of one Clarence who was drowned in a butt of liquor he much loved, for she was swimming in about ¼ oz. of honey, intended no doubt to prevent her fainting by the way. The other morning a queen came with four workers, and about 1 oz. of dry moist sugar, in a box 4 ins. square and 3 ins. deep with thirty or forty bradawl holes in the lid. The owner was no doubt a believer in dry sugar feeding, but a bulkhead should have been inserted in the box to keep the cargo from rolling over the passengers, as excessive generosity had smothered them in sweetness. Queens come with three or four attendants in a metal vesta box more safely than in these huge packages. Air-holes are not required, and the better the outside packing the less likely is crushing. It is not pleasant to mess delicate and valuable appliances with sticky fingers, and how can they be kept clean unless bee-keepers send more wisely? The queen first mentioned I dissected as well as circumstances permitted and found several bacilli, but these, though showing that she came from a contaminated stock did not prove her diseased, as in the general clamminess the bacilli may have been transferred from the outside of the body. My address is Rosemont, Bromley, Kent, and bee-keepers forgetting this are putting me to considerable expense for the redirection of my letters and packages. In future all misdirected ones must be refused.—F. C.

J. D. M.—Will you please thoughtfully discuss some of the subjects suggested by you?

J. BROWN.—The sprig of heather forwarded is the *Calluna vulgaris*. It is the best of all British heaths for honey secretion. It is a great favourite with all races of bees.

INQUIRER.—*Mead.*—We reprint two recipes for mead as requested. 1. From Mr. E. Thompson of Brigg:—To every gallon of water put 4½ lbs. of honey, to which add 1 oz. of ginger, in pieces, and 1 oz. of hops, tied in a bag, to about 5 or 6 gallons. Boil and skim it an hour. Let it stand till cold, then put it into casks, with a pint of brandy to every 6 gallons. N.B.—No yeast must touch it. 2. Take a gallon of honey and 8 gallons of water, and boil it well, till it comes to 6 gallons; then pour it into a large vessel of earthenware, let it stand till it is almost cold, and then pour into it a little yeast to work it. When it has worked a while, put it into a rum cask, and stop it close. Let it stand two months, then bottle it off, and put into every bottle two cloves and a little lemon-peel. (This receipt is almost one hundred years old.) There are many others to be found in previous numbers of the *Journal*.

THOMAS CROSS.—*Salicylic Acid.*—The drug used in salicylic acid is crystals, but they will not dissolve in water, therefore a solutive must be added. This is found in soda borax. Mix equal parts of the acid and borax, then add the water. Half an ounce each of salicylic acid and soda borax to a quart of water; half an ounce of this solution to every five pounds of sugar used in making the syrup.

MIDLANDER.—*Driven Bees without Queen.*—The queens have got killed. It is of no use the bees raising queens, as it is almost an impossibility of their being fertilised. You must either unite them to another lot having a queen or introduce one to them, first destroying the queen-cells. If this is done more than eleven days after the first cell was seen, you will have to remove the virgin queen, as by that time one will have left the cell. Feed until they have 30 lbs. of syrup stored.

SUBSCRIBER.—*Uniting Condemned Bees to Bar-frame Hive.*—The manner in which you conducted this was correct, presuming that you removed the bees from the bar-frame hive, of which you say nothing. The bees ought to have been removed from the bar-frame hive, then mixed with the driven bees, and then run in at the entrance of the hive, the combs of which ought to have been replaced in the hive before doing so. We have never had them fight after so doing. The next time you had better scent both lots with syrup having a few drops of essence of peppermint mixed with it.

R. GLASGOW.—The comb sent was affected with foul brood.

E. FIELD.—*Dead Brood.*—So far as we can judge from the specimens sent, there is no disease. The pupæ have failed to develope into perfect nymphs, probably from being chilled when the change of weather occurred. Continue to feed on syrup medicated with salicylic acid or phenol according to recipes.

X. Y. Z.—*Orange-coloured Sections.*—From your description, we are inclined to think that the section-honey has been collected from mustard or rape, but we never knew these plants to cause a bitter taste in the honey. It is possible that if the dandelion is plentiful in your neighbourhood, the bitter flavour may come from it, but we have no experience of such a result.

R. J. S. and BEESWING.—*Carbolic Solution.*—We have not found the solution, of the strength recommended, to blister the hands, but we are rather thick-skinned—not to say pachydermatous—and we can well understand that the case delicate hands of a lady might suffer. But in such a why not use a *lemon-squeezer*, or a press of some kind, instead of the hands, for wringing the carbolise cloth?

E. C.—We are averse to insert letters affecting the decisions of judges at shows. Some exhibitors must necessarily be disappointed. We should advise that the grounds of your dissatisfaction with the verdict of the judge be laid before the hon. secretary and the local committee, who would take a greater interest in the matter than the general body of bee-keepers.

*** *We are obliged to postpone the replies to several queries till next issue.*

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Editorial, Notices, &c.

HONEY-DEW.

'Fresh from their Summer sleep, on airy wing,
Forced thro' each oozy pore the Sap-floods spring,
And, as gray dawn or evening tints the ray,
Twine pearls or liquid rubies round the spray.
Nor scorn ye now, fond elves, the foliage sear,
When the light Aphids, arm'd with puny spear,
Probe each emulgent vein till bright below,
Like falling stars, clear drops of nectar glow;
And, roll'd along the glade in billowy streams,
To the rapt eye a sea of amber beams.'

EVANS, *The Bees, III.*, 570—579.

In our last number we endeavoured to trace the history of honey-dew from primitive times to the present day; and that which struck us most in our review was the great difference in the appreciation of honey-dew by the ancients and by the moderns. By the former it was extolled in the loftiest terms, as 'the heavenly gift of ethereal honey,' 'the saliva of the stars,' 'the quintessence of all the sweetness of the earth,' and 'the purest nectar coming from above;' while by the moderns it is regarded as 'the excrementitious product of aphides,' 'aphidean excreta,' 'black aphidian honey,' &c. No more entire subversion of the meaning of a term can be conceived. The supramundane superlatives have resolved themselves into the lowest of positives. But 'with regard to tastes there is no disputing.'

Honey-dew is not, however, always spoken of in such disparaging terms, and it is doubtful whether those that apply them have acquired sufficient entomological acquaintance with the peculiar organisms of aphides to justify them in their application; and it is a question whether, when they have arrived at that knowledge, they will not desire to modify the opinion they now entertain of it.

While the great majority of those who have studied the physiology of aphides accept the conclusions of Mr. Curtis and Dr. Kirby as to the production of honey-dew as given in our last number, yet many other observers maintain that it is of vegetable origin. Dr. Hooker endorses Liebig's opinion, that honey-dew must not be ascribed to the agency of aphides. The Abbé Boussier de Sauvage thinks that the secretion may have both a vegetable and an insect origin. Mr. H. Doubleday considers the dropsical appearance of currant-leaves due to a disease which causes the transpiration of a fluid from the pores. M. Boussingault denies that the saccharine matter on lime-leaves is the produce of aphides. His analysis of honey-dew is—Cane-sugar, 48·86; sucre interverti, 28·59; glucose, 22·55 = 100. But this analysis has not been accepted by Dr. Gunning, of Amsterdam, who states that it principally consisted of cane-sugar, and not of grape-sugar or glucose. Mr. Buckton, than whom no one has paid such attention to aphides, is very much of opinion that the honey-dew found on leaves is of aphis origin.*

Let us turn now to the opinions of bee-keepers as to the taste of honey-dew.

Mr. W. Carr of Newton Heath, Manchester, says, 'The linden tree produces a great quantity of honey-dew. This fluid *is scarcely inferior to honey in sweetness*, but is of a dark colour.' Mr. Cowan, in the discussion on Mr. Griffin's lecture on 'Honey and Wax,' says that 'honey-dew is not altogether valueless, and that from the pine has a peculiar flavour, which is not at all disagreeable.' Langstroth, as a representative of American bee-keepers, says that honey-dew 'though seldom light-coloured, is generally of a good quality.' A bottle of honey-dew was forwarded to us about two years ago; it was characterised by the party sending it as 'abominable stuff'—'as black aphidian honey, almost the colour of ink.' This we gave away, and the report of the recipient was that it was very palatable, that he had relished it very much, and was sorry when it was exhausted.

Mr. Griffin, on the occasion of the above-mentioned lecture, had among the samples which he had brought for the illustration of his lecture one of honey-dew, which had been gathered by bees in 1884 at Hungerford from the aphides of the oak. He states as his opinion:—'Raised to a high temperature, almost black, most disagreeable to the palate, and of strong odour;' a second sample, like to the preceding, but left to crystallise, 'had become a mottled brown, much resembling marble.' Mr. Griffin described honey-dew as 'a viscid transparent substance *as sweet as honey itself*.'

Whatever difference of opinion there may be as to the origin of honey-dew, there can be no disputation as to the large quantity of it that is sometimes found; and the evidence with regard to this is very ample, and the circumstances under which

* *Monograph of British Aphides.* By G. B. Buckton, vol. i. p. 43.

it is found, fully bear out the idea of Virgil as to *roscida mella* (dewy honey), and that of Dr. Butler when describing it as 'descending unto the earth as a dew, or small drizzling rain.'

Mr. Knight (writing towards the end of the last century) once observed a shower of honey-dew descending in innumerable small globules near one of his oak-trees. He cut off one of the branches, took it into his house, and, holding it in a stream of light admitted through a small opening, distinctly saw the aphides ejecting the fluid from their bodies with considerable force.

Mr. W. Carr thus states his experience :—

'On July 21st, 1876, I was in Leek churchyard, around which, more than fifty years since, were planted rows of linden trees, and underneath these trees the flags were wet over with honey-dew, and I observed a shower of honey-dew descending in innumerable small globules, and extending beyond the trees, the leaves of which were covered with *aphides salicis*. My clothes soon began to be sticky with honey, so I called a friend that lives near, and told him to put some *buckets* under the trees, as it was a land really flowing with honey. The happy humming noise of the bees could be heard at a considerable distance from the trees, sometimes nearly equal in loudness to the united hum of swarming.'

Mr. Garratt, Mr. Dobbie, and others (*B. B. J.*, vol. 13, pp. 166, 256) bear similar testimony to the large amount of honey-dew deposited by aphides.

What the locusts are in warm climates, aphides are in cooler ones. It is said that locusts fly in such numbers as to intercept the sunbeams, and to darken whole countries as they pass from one region to another, wasting large districts. The same tendency to shift their quarters in countless numbers is to be noted in the aphides. Gilbert White, of Selborne, says :—

'About three o'clock in the afternoon of the 1st of August, 1785, the people of the village of Selborne were surprised by a shower of aphides or smother-flies, which fell in those parts. Those that walked in the street at that juncture found themselves covered with these insects, which settled also upon the hedges and in the gardens, blackening all the vegetables where they alighted. These armies, he observes, were then, no doubt, in a state of emigration, and shifting their quarters, and might have come from the great hop plantations of Kent or Sussex, the wind being all that day in the east. They were observed at the same time in great clouds about Farnham, and all along the vale from Farnham to Alton.'

Dr. Kirby had a similar experience :—

'An emigration of these flies I once witnessed, to my great annoyance, when travelling later in the year, in the Isle of Ely. The air was so full of them, that they were incessantly flying into my eyes, nostrils, &c., and my clothes were covered by them. And in 1814, in the autumn, the aphides were so abundant for a few days in the vicinity of Ipswich, as to be noticed with surprise by the most incurious observers; as they were September 26th and 27th, 1836, at Hull, where, as the local newspapers stated, such swarms filled the air that it was impossible to walk with comfort from their entering the eyes and mouth at every step; and on the same days they were equally numerous at York and Derby.'

There is so much of interest in the life-history of these producers of honey-dew that we find we must postpone our continuation of it to a subsequent number.

USEFUL HINTS.

Weather.—Autumn weather, on the whole, is proving favourable to the bees. Easterly winds and cold nights prevent too much excitement and long fruitless flights, but occasional hours of sunshine encourage cleansing flights and a gradual preparation for the winter's rest, which ought, in well-regulated apiaries, to commence at once.

Wintering.—Strong colonies, with plenty of sealed stores and winter coverings, ought to be disturbed no more until March winds or April showers harbinger the summer's flowers, and, let us hope, another bounteous honey-flow. As regards winter quilts, our hives are covered with enamel sheet, which is already propolised, and will not again be disturbed. Over this is placed several thicknesses of carpet, and upon all a flat straw cover, with a couple of bricks to keep all tight. When wasps have disappeared, plenty of bottom ventilation will be given, and all colonies, having abundance of sealed honey, are already in winter quarters, and will, we trust, soon be in a state of semi-hibernation.

Queen Introduction.—It has been impossible to write instructions for the use of the improved pipe-cover queen-cage to all who have applied for specimen cages. A few hints, therefore, may prove acceptable. Our own practice is to remove the queen which is to be superseded about noon on a fine day, and on the same evening, when the bees will have discovered their loss, to cage the new queen in the brood-nest. The division-board and an outside frame are removed first, in order to obtain plenty of space for manipulation, and the frame on which we intend to cage the queen, containing hatching brood and sealed honey, is raised, and one end again lowered into the hive until the end of its top-bar rests upon the hive-side, and the opposite end of the bottom-bar on the other side. This plan sets both hands at liberty for action, and gives full command of the comb. The alien queen, having previously been kept in solitary confinement for half-an-hour under the cage placed on a card in a warm room to avoid chilling, is now carried to the raised comb, and the bees are removed by a dry carbolised feather from the spot which the cage is to occupy, between brood and sealed honey. The cage, upon its card, is placed upon this spot, the card carefully withdrawn, and the cage screwed down to the midrib of the comb, allowing room enough for the queen to move freely around. The frame is then lowered into its proper position, the remaining frames closed up, one by one, and the hive left in its normal state until the next evening—twenty-four hours—when it is again opened and the comb on which the queen is caged is raised as before. If the bees are thickly clustered upon the cage in shape of a solid ball, evidently intent upon mischief, the hive is closed and allowed to remain *in statu quo* for twenty-four hours longer. But if, on the other hand, the bees appear well disposed towards the imprisoned queen, offering her food through the bars of her cage, she may gently be set free by turning the cage slightly aside, and allowing her to walk out upon the comb. If she is allowed to proceed and food is offered, the hive may be quietly closed, and on the following morning an examination may be made to see that all is right. If, however, on setting free, the queen is seized by the wings or legs, and an angry knot of bees begin to surround her, stopping her progress, she must at once be rescued and caged for another twenty-four hours. A carbolised feather, wiped clear of the solution, will drive away the evil-disposed bees, when the cage can be slipped over the queen, and again pressed down to the midrib. We always enclose within the cage two or three cells of capped honey, so that the queen can feed herself, and the bees are induced to feed her also, while gathering up the honey from the bleeding comb. If the above directions are carried out quietly, without hurry or excitement, success will be all but certain. We successfully release the queen after twelve hours' con-

finement. Before attempting the release it is best to look over the brood-combs, and carefully to notice whether any queen-cells have been commenced. If so, cut them out, and close the hive, without attempting to set free the queen, or the probability is that she will be encased and destroyed. It is best to get queens introduced by the end of this month, but if the weather continues fine introduction may be continued until the middle or end of October.

Dead Brood.—In regard to Mr. Webster's *apologia* for Mr. Simmins's theory of 'dead brood,' we should only be too pleased to believe the theory correct, but, unfortunately, our experience is dead against it. We can hardly compare bees and poultry, since the fecundation of the eggs and other conditions differ so widely. With the exception of chilled brood we have never met with *dead brood* in a fairly populous colony, save from disease, but we admit that our experience has been principally with queens raised under the natural swarming impulse. But whether *dead brood* may be attributed to an imperfect or to a diseased queen we hope shortly for a report which will set the question at rest. That more than one kind of bacillus attacks our bees is a question beyond dispute, and that the *dead brood* in question will be found to be caused by bacillus we have little doubt.

Transferring Stores and Winter Passages.—Where winter preparations have not been completed it will be advantageous to remove from strong colonies combs containing much pollen. Such may be given to condemned bees which have built their own combs, but have had no opportunity of collecting pollen. Sealed combs of honey also may be removed from the outside of strong colonies having more than sufficient winter store and given to weaker ones. Winter passages are a decided advantage, enabling the bees in cold weather to pass freely from comb to comb. Combs of sealed honey stored in a dry warm closet will be found of great use as food at spring.

South Aspect.—Whether the combs of the hive range from back to front, or parallel with the entrance, let the aspect of your hives be south. Then the cluster of bees will be on the south side of their hive over the entrance, and they will have far greater inducement to take cleansing flights during sunny days in the winter months than if the aspect had been in any other direction. For this reason we prefer the parallel combs to be close up to the front or entrance side of the hive, without any intervening space or porch as recommended by some. Our plan has always been to encourage flight during winter in suitable weather as much as possible, since nothing more conduces to healthy wintering than occasional cleansing flights.

Fecundation in Confinement.—In the *American Bee Journal* of the 7th inst., Mr. W. N. M'Lain gives the results of varied experiments in controlling the fecundation of queens, both by natural and artificial methods, carried on during the last two or three years. His most important point is, that a *portion only* of the drones produced in a hive have the power of procreation, and that this power is conferred by the workers by means of a particular kind of food, just as in the case of queens. Also that fertile drones are found in greater abundance in hives affected with the swarming fever than in others, and he makes the remarkable statement that not more than 5 or 10 per cent of the drones produced are capable of procreation. We recommend the perusal of Mr. M'Lain's important and interesting paper to those of our readers who take an interest in the subject; since our space will not admit of long extracts, suffice it to say, that, by his most ingenious artificial method he succeeded in fecundating queens which proved, upon trial, as prolific as any queen he possessed. In experimenting by natural methods he made use of a house 10 feet by 16 feet, and 8 feet high, partly covered on the sides with wire-cloth, a wire-covered sash in the gable, and large screen wire-covered doors in each end. In this house he placed his hives, and succeeded in procuring the fecundation of three out of six queens. This is undoubtedly a decided step in advance, and Mr. M'Lain is sanguine of complete success. The subject is one of the greatest importance, and almost the only problem which remains unsolved in apiculture.

Foundation Fixer.—In American apicultural circles also a new machine for fixing foundation is thus described:—'It is an automatic, self-lubricating machine for fastening comb foundation into section boxes for surplus honey, as used by bee-keepers. The task heretofore has been a slow and tedious one, owing to the want of a machine that would do the work expeditiously. This machine will fully satisfy the want. It will do the work of any *ten machines* ever invented in a given time. Though simply constructed it is a marvel of ingenuity, and all apiarists cannot fail to appreciate it upon examination. A patent will be obtained, and the manufacture of the machines will be commenced at once.'

We trust that Mr. Lee will lose no time in bringing out his patent machine for producing sections in which full sheets of foundation are fixed while putting the sections together, and which process obviates the necessity for the use of a foundation-fixer at all. The American machine, we suppose, merely fixes a strip of foundation on one side of the section, and can never successfully compete with Lee's method.

TIN SECTION-CASES.

As will be seen from our advertising columns, Mr. A. D. Woodley has disposed of his interest in the Tin Section-cases, brought out by him this year, to the British Bee-keepers' Stores, now removed to larger and more convenient premises at 6 George Yard, Fenchurch Street, E.C. These cases have taken several prizes during the late season, and by their neatness and cleanness have proved of great service to bee-keepers in the disposal of their sections.

ASSOCIATIONS.

BRITISH BEE-KEEPERS' ASSOCIATION.

A meeting of the Committee was held at 105 Jermyn Street, on Wednesday, September 21st. Present: The Hon. and Rev. H. Bligh (in the chair), Dr. Bartrum, the Rev. F. S. Sclater, Capt. Bush, Capt. Campbell, H. Jonas, J. M. Hooker, Dr. Walker, W. O'B. Glennie, Treasurer, and the Secretary. The minutes of the last meeting were read and confirmed. The Finance Committee presented their report, recommending the payment of certain bills, also a statement of assets and liabilities of the Association. The Secretary reported that he had made application for the outstanding subscriptions, and that several had already been sent in.

It was unanimously resolved that the Chairman be requested to express their sorrow on account of the sad loss the Association had sustained in the death of Mr. Duncan Stewart, and to express the sympathy of the members with Mrs. Stewart and other members of the family in their heavy bereavement.

The Examinations Committee reported that the certificates gained by the third-class candidates during the past season had been duly signed and would be forwarded to the respective Secretaries of the County Associations.

It was resolved that the second-class examinations should take place on Saturday, November 12th.

The Secretary reported that he had received a letter from Mr. S. Corneil, of Canada, together with a newly invented machine for fixing foundation on sections. It was

resolved that Mr. Hooker be requested to give the machine a practical trial and report the result at the next quarterly meeting, to take place on October 21st.

The following is the list of successful candidates at the third-class examination held during the past season:—

Berkshire	M. Whittle, Wantage.
Derbyshire	Thos. Austin, Alvaston.
„	W. Coxon, Ambaston.
„	B. Skerman, Swanwick.
„	J. J. Shipman, Ashover.
„	B. Rawson, Selston.
Essex	J. G. Cheek, Braintree.
Gloucestershire ..	J. White, Toddington.
„ ..	A. J. Brown, Bradley.
„ ..	G. Newman, Gloucester.
„ ..	R. Woodward, Charlton Kings.
Kent	W. Blake, Collingwood.
„	T. Badcock, Gravesend.
Lancashire	W. Drinkall, Lancaster.
„	W. Liddell, „
Leicestershire ..	A. H. Windsor, Netherseale.
Monmouthshire ..	W. Williams, Caerleon.
Northumberland	T. Hedley, Hexham.
Staffordshire ..	J. Beech, Burntwood.
„ ..	F. Wilshaw, Cheddleton.
Shropshire	Miss M. E. Eyton, Leaton.
„	H. Brooks, Wrockwardine.
„	J. Palmer, „
„	T. Shuker, Advaston.
„	J. Shuker, Allscott.

Any of the above, or candidates who have gained third-class certificates in previous years, and being desirous of competing for a second-class certificate at the next examination, fixed to take place on Saturday, the 12th day of November next, should give immediate notice to the Secretary of their County Association.

MIDDLESEX BEE-KEEPERS' ASSOCIATION.

A Quarterly Committee was held at 107 Jermyn Street, W., on Wednesday, the 21st inst. Present—Hon. and Rev. H. Bligh (in the chair), Major Fair, Dr. Raynor, Messrs. Jonas, Hasluck, Graham, and English. A cordial vote of thanks was given to Mr. Hasluck for his courtesy in placing his grounds at the service of the M. B. K. A. for their show on 20th August. Resolved that the expert's tour in the N. E. Province be undertaken by Mr. S. J. Baldwin. A statistical return was considered and referred to a sub-committee to be printed and circulated. The subject of winter lectures was under consideration.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. Huckle, *Kings Langley, Herts (see 2nd page of Advertisements).*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

PARALLEL *v.* RIGHT-ANGLE FRAMES.

[1279.] Dogmatism is, I trust, no part of my nature, but if there is one thing more than another that makes me feel at all inclined to be dogmatic it is the question of parallel *v.* right-angle frames. I must own that I 'go in' for parallel frames; not that it is for any idea that I think the bees do better upon this principle or that they do worse, but simply that the frames in this position are much easier to handle, the hive can be manipulated with greater comfort. There is, as a rule, greater space in the hive which is useful for a variety of purposes; there is also economy of space: but that it makes any difference in the honey yield I consider a fallacy, or that the health of the bees suffers in consequence is another fallacy. Often have I smiled at the expressed ideas of some that the system known as the 'hot' is a cause of 'foul brood.' Am I not dogmatic? Well, let us examine the above assertions in as dispassionate and unbiassed a manner as possible. In the first place, Does it make any difference in the honey yield? My best hive this season was on the 'hot' system, but one hive stands for nothing. I find on tallying the whole of the apiary that this question is 'six to one and half-a-dozen the other;' there is not the slightest difference, just as I have found before. I daresay that I have as many skeps pass through my hands as most bee-keepers, and for some years have given this question a deal of observation, the results of which are as follows. The positions of the combs built are as often one way as the other, that is, if the angle is accurately gauged; but on account of there being a much larger number of angles within a circumference and its centre than these two, I find that more combs by far are built angleways than any other, also a great number are built at several different angles in a single hive.

Many, I know, will say that their experience is the reverse, and as the thought just strikes me at this moment I will run out to the apiary and look at six skeps I have there. Unfortunately, for this question, I have just now only that number in this apiary. . . . I have done so, and find eight different angles represented, but the majority is in favour of the parallel or 'hot' system. This is the result: No. 1 hive within one degree of parallel. No. 2 at an angle of 45°. No. 3 at an angle of 50°. No. 4 has three different angles. No. 5 exactly parallel. No. 6 within five degrees of right angle. I must own that I did not expect to find such a result in favour of the parallel system as the prior portion of my letter shows. The next assertion I make is that the frames are much easier to handle. I don't think that any experienced bee-keeper will negative this. In handling such frames your hands need not move over the tops of the frames at all, the hive being manipulated from the back—the correct position. In handling frames on the 'cold' system you cannot lift any frames from the back without passing your hand over the whole extent of the uncovered portion of the hive; this, as is well known, is inadvisable, therefore the manipulator to prevent it must stand at the side, if there is any room between the hives. This is a consideration in cramped positions. Such a position as I saw at Llanrwst, where one of the most advanced of Welsh bee-keepers (Mr. Berry) is obliged to keep his hives within three inches of each other. A hive on the 'cold' system has the space—if any—unoccupied by frames, divided into two; there is, therefore, unless the hive is—shall I call it?—abnormally large, much less room to place extracted combs or sections to be cleared out behind the dummy-board. With parallel frames this space is all in one place at the back. I find it very convenient to keep any little adjunct belonging to that particular hive, for clearing out combs without disturbing the interior, and moving frames well away from those contiguous when examining for anything. In using a hive on the 'cold' system as a nucleus it will be found very awkward, as the two or three frames used with the two division-boards will not extend the whole length of the entrance. You, therefore, have a number of the bees entering on each unoccupied side of the division-board and getting into the roof, thus losing themselves; it also gives a better opportunity to robbers—much feared in nuclei—

as even with contracting entrances you cannot entirely surmount this defect; but with a hive on the 'hot' system there cannot be but one entrance direct into the hive, even if you have only one frame.

The chief advantage claimed for the 'cold' system is that better ventilation is afforded. This may be true with those frames directly opposite the entrance, four in number, but those on each side of these four are as badly off (?) as those on the 'hot' system, but with entrances extending the whole width of the hive this will not apply. If there is so very much difference in the amount of ventilation, which I question, so must there be a greater variation of temperature within the hive, cold nights will be more visibly felt, and warm days likewise. The latter is of little importance, as this the bees can easily reduce. The question of ventilation is, I think, very much of a myth, yet the results of these two systems devolve entirely upon it. I have heard the opiuion given that according to the position of the hives, whether the entrances be towards the north, south-east, or west, so will the combs be built. I must really negative this. Just examine a few and see whether there is any knowledge of the cardinal points expressed in the building of natural combs by the bees.

The opinion I have expressed can be summed up in a very few words: that there is no perceptible difference to the bees which system is adopted, but to the bee-keeper the parallel is the most advantageous. These are not the results of observations made upon one, two, or three hives, but extended over a very wide area of naturally and artificially built combs.—W. B. Webster, *Binfield, Berks.*

EXTRACTING FROM BROOD COMBS (1246.)

[1280.] My thanks are due to your Irish correspondent, 'Walter J. Stanford,' for his notice of my remarks on this subject, and also for his candour in confessing that his mind is prejudiced against me; this admission on his part involves a principle which, if universally carried out, could lead to nothing but the worst results, and to me it seems somewhat extraordinary that he should have put forth such a doctrine in the *Journal*. His principle is this, that because a correspondent has written a letter to the *Journal*, perhaps a year ago, which contains something he disapproves of, so henceforth his mind is prejudiced against that person, and ever afterwards his writings are to be looked upon with disfavour. Surely this is, to say the least, most unfair and irrational, and I do hope no other readers are imbued with the same sentiment. 'W. J. S.' states that 'Mr. Boyes writes as if no one else could be right but himself, and that once he has stated what he believes to be fact, that fact (?) must be law henceforth.'

I was not aware that I had ever been guilty of assuming any such spirit of dogmatism, and if I have, it certainly has not been intentional; but to be candid, I must admit that when I have stated what I have proved to be a fact I have endeavoured to uphold my opinion. This is one of the primary tenets of scientific men to maintain what they believe to be fact until it is upset, and if it really be a fact, that truth is law henceforth; and so long as I write to the *Journal*, I shall endeavour to do so—it is open to 'W. J. S.' as well as to every one else—to dispute me, and when they bring sound argument to bear on the subject I do not complain; but I do object to have facts opposed by theory, or perhaps nonsense, or worse, abuse. Now let me point out an example arising out of this very subject under discussion.

I advance what my eyes have seen, viz., bees drinking at manure-heaps, &c., and it is also a fact well known to many bee-keepers—careful observers; it is, therefore, an incontrovertible fact, a truth. How is it confronted? as follows by 'W. J. S.':—'I admit that bees *visit* queer places, manure-heaps, pigstyes, &c., but I have always thought that they were attracted there by their powerful sense of smell, and that unless absolutely reduced to water starvation, left all foul places as they came.' Here then is simply a case of inaccurate observation; but does any one suppose that my fact is in any way altered by such negative evidence as this? no scientific man would for one moment admit it. How then does my other opponent, 'G. T.,' meet my fact? He states:—'I do not believe that bees are such fools as to visit such places as manure-heaps, &c., if there is good water within three miles of them.' Can any one wonder when facts are met in this way that people sometimes write rather strongly on this point?

'W. J. S.' asks me for my chemical analysis of the honey from which I have made my statement. I have none; common-sense has been my guide in this as all other bee matters, nor do I see the necessity for a chemical analysis. I watch bees drinking at manure-heaps, &c., and they fly direct to their hives, that is sufficient for me. I can readily guess that if I analyse the contents of that hive I shall find it there. I am, however, very much obliged to 'W. J. S.' for his remarks regarding analysing honey, but I am sufficiently acquainted with the subject for my purpose. But why try to make a mountain out of a molehill, 'W. J. S.'? And do not, please, raise up any metaphorical monster in my name. What evidence have you that 'after all ammonial liquid has been extracted and cleaned out by the bees, traces of solid nitrates cannot fail to remain, and would be taken into solution on suspension again when placed in contact with a liquid'—would it not depend on the density of that liquid? and would not the quantity be so infinitesimally small that the liquid would be, for all practical purposes, unaltered?

If you are going on a line of argument of this kind I shall, in spite of your assertion that your honey is second to none in purity, colour, and flavour, yes—I shall not only deny that it is pure, but I shall deny there is such a thing as pure honey. But all this is beside the question, and is a bugbear of your own raising. The point is whether it is beneficial or otherwise to extract from brood-combs? My contention is that if there be feeding larvæ in these combs there is usually unsealed honey and food in close proximity to it, which is not pure honey.

One word more and I have done. I regret exceedingly that my letter on extracting from brood-comb 'has hurt his feelings very much.' I fear he is a little too sensitive on the point, and this may have led him to view the subject in such a terrible aspect. I hope this letter will soothe his mind and help towards his speedy recovery. I can assure him there is nothing to be alarmed at. But what about my feelings? what must they be, when he calls upon English, Scotch, Irish, and Welsh bee-keepers 'to do fierce battle' against me? Well, well, I hope I shall get over it; I think I shall. I have too good an opinion of them to believe they will hurt me much, or that they will find me guilty of trying to do bee-keeping an injury.—F. Boyes.

DRONE-COMB.

[1281.] As a constant reader of your *Journal* I have had much pleasure and profit from your 'Useful Hints,' though I have not *always* agreed with the author. But who are always right?

On p. 407, Mr. 'U. H.' put forth some meditations on the above topic, and there, I think, he is certainly wrong. He speaks of drone-comb as if this was built by the bees with the intention *to rear drones*, but I think that this is very seldom the case. Drone-comb is generally built by the bees as store-comb, because it is cheaper and easier to build than worker-comb. If you give a swarm some frames with empty worker-comb, but also some empty frames, or such with foundation only half-way down, the bees will not build out the empty

room with worker-comb, even if it is in the centre of the hive, but with drone-comb. This is a common case, and nothing to be wondered at, as Mr. 'U. H.' seems to believe. The cause of the building of drone-comb is in this case evident, viz., in the empty worker-comb given to the family the queen has at first room enough fer depositing her worker eggs, so the bees fill out the empty room in some of the frames with the intention to use them for honey. Try to put a swarm in a hive in which the frames have only narrow starters, and the bees will build all worker-comb as long as the queen is able to follow them with her egg-laying. But try then, after, say, eight days, to put only a couple of frames with empty worker-comb in the centre of the hive, and then the bees instantly will begin to build drone-comb. Is this because 'Nature now demands drones?' No, most certainly not. It is only because the queen now suddenly gets room enough for her worker eggs, and then the bees will build for storing honey. So you see it is always the bee-keeper's own fault if he gets drone-comb when he wants worker-comb.

To get worker-comb built, it is only necessary *either* to manage so that the queen constantly is in want of cells for egg-laying, *or* to fill out all the empty frames to the bottom bar with *good* foundation. Mr. 'U. H.' speaks of drone-comb being built on worker foundation, but then I am sure it has been bad foundation. Some years ago I had often the same result, but now I have better foundation with cells of the *right size*, and since I used this foundation I have never seen drone-comb built on worker foundation in my hives.

That a strong colony in the summer ought to have some drones, there I agree with Mr. 'U. H.,' but for this the bees always will find room enough without the help of the bee-keeper.—HANS ERSLEV, *Kalundborg, Denmark, Editor of the 'Danish Bee Journal.'*

RE FOUL BROOD.

[1282.] I think the result of Mr. J. T. Harveyson's observations points to the fact that none of his queens were diseased, and in this lies the difference between his case and mine. I should be the last to advise the destruction of a healthy queen knowingly. Will Mr. H. kindly direct me to that observation of Mr. Cheshire which I overlooked, viz., where he 'distinctly says the queen *must* be removed if there is reasonable ground for believing her to be infected, and a healthy one substituted, ere a cure can be effected?' I was not aware that Mr. Cheshire ever laid it down as a rule that in bad cases it was better to remove the queen. What I want to encourage is the destruction of every queen on suspicion, for Mr. Harveyson shows how easy it is to cure the disease if the queen is not diseased, without destroying the combs as recommended by the 'Man of Kent;' and although a good many healthy queens may be destroyed by acting on my advice, still I compare the disease to a house on fire, the sooner it is out the better. Mr. Cheshire does not approve of feeding healthy stocks with medicated syrup as a preventative; but in my case I am convinced it saved the apiary from attack, and that is why I recommend it. I heartily congratulate Mr. H. on his success.—THOS. F. WARD, *Hyhgate, September 23rd.*

FOUL BROOD AGAIN.

[1283.] Come, friend Ward, you have made a very great mistake this time when you say that you are glad to find that Mr. Simmins, having acted upon your advice, given to him twelve months ago, can now from practical experience confirm your statement as to the Cheshire cure of foul brood being certain if the diseased queen is removed and a healthy one substituted. I cannot find one word in his communication in which he says he has had any practical experience of foul brood during the last twelve months. But we have it from 'W. Hollier' (1170), page 334, that he has not had any experience of it since he has been at Rottingdean, and it is five years ago since Mr. Hollier made his first journey there, but he tells him that he *thinks* the Cheshire cure will prove effectual (if) you only requeen as well.

Now only fancy a breeder of queens for sale, like Mr. Simmins, saying that he has been experimenting with foul brood. I wonder who would buy queens from him? Not I, for one. Mr. Simmins is far too shrewd a man for that, but he does say that he had experience of it some ten or twelve years ago, and that he starved it out, which I should imagine is a very similar process to what I am recommending.

Again, Mr. F. Cheshire, in reply to inquirer, 'J. S. L.,' page 403, recommends the turning out system if the bees are strong enough to work out foundation.

Will Mr. Ward give us a little more information as regards his treatment of his five infected stocks in 1885, the date of his first finding out that he had got foul brood, and the date of his putting the swarm upon the affected combs, &c.? If Mr. Ward has got his apiary clear of foul brood, I certainly should not advise him to try breeding from a diseased queen, if he can make sure of getting one; but how is he going to prove that he has got a diseased queen unless he has her killed and dissected?

It does not appear to me to be a disease of the mature bee, but only of the grubs, principally just before they are sealed over in the cells. If the queen gets the disease, how is it that it does not kill her? I have known hives dwindle down to a mere handful of bees, and yet the queen appears to be as lively as ever, even depositing two and three eggs in one cell, but there have not been enough nurse-bees in the hive to attend to them.

There is no mistake but what the fell disease is travelling in the wake of the bar-frame hive at a rapid rate. Since writing last I have been in conversation with two bee-keepers, owning about forty hives between them, and the one having the largest quantity wants to sell out through having got the disease, and yet this man did well with his bees in the old straw skeps.—MAN OF KENT, *September 19.*

CURING FOUL BROOD.

[1284.] In reply to 'Man of Kent' (1228) as to my present experience of camphor as a cure for foul brood, I have not tried it on but one stock this year, and that at a friend's some distance from here. When, after three weeks, I examined the same stock, there was no difference. There was a lot of disease, but also some healthy brood hatching out as before; so I thought of trying phenol, but, for all that, it did not cure it, so I concluded that the queen was diseased. But the stock that I cured two years ago that 'Man of Kent' speaks of I have now. The same queen has been in up to a week ago, when I replaced her with a young one. I have taken from this hive this year nine bars full of brood to double another, and 12 lbs. of honey, besides having enough for the winter. As for 'Man of Kent' not finding skeps with foul brood, I can assure him I have found five this season—one at a farmhouse quite half a mile from any bar-frame hives. This and two others were so weak when I found them I was told to do as I liked, so I made a fire and burned the lot—bees, comb, hives, and all. I have cured one other bar-hive with phenol this year; two others, not my own, would not yield to anything. Last year I cured two by fumigation with salicylic acid—turning a small bull's-eye lantern into a fumigator by fitting a chimney to it, turning into mouth of hive, feeding as directed in Mr. Cowan's *Guide-book*, and using sweet oil instead of spirit for lamp.—JOHN HOUNSOM, *Leigh, Tunbridge, Sept. 19th.*

A USEFUL ASSOCIATION.

[1285.] One frequently reads in your columns the complaints of bee-keepers who cannot find profitable markets for their honey. 'Sherborne, Dorset,' sees little use in associations so long as nothing is done to bring the members into direct communication with retailers. So do I. I think this question of the sale of honey is perhaps the most important one for consideration just now, for, after all, bee-keeping, in the majority of cases, ceases to be attractive when it ceases to be profitable. What advantage can one derive from abundance of sections, and abundance of stings also, if he has to sell his honey at 5*d.* a-pound, except, perhaps, the satisfaction of knowing that some one—the middleman most likely—secures a profit?

I should like, with 'Sherborne,' to see the middleman no more, and I am glad to let your English Associations know that in Ireland our Association is of real use to its members in this respect—the profitable sale of their honey. I sent all my sections to the Association this summer, and the secretary secured 10*d.* per pound for me, when section honey was being retailed in Dublin at 6*d.* Not only does the Association bring us into direct communication with the retailer, but with the *best* retailers, and all this for 5 per cent. Your English Associations would do well to take a hint even from Ireland, where, as you say, 'bee-keepers have thrown off their former lethargy!'—J. GARVEN DIGGES, *Lough Rynn.*

BUMPING.

[1286.] On the subject of bumping I must say I have been still more successful this year. As regards stings especially, from fourteen stocks I have not received more than twenty stings. One stock of hybrids gave me more than all the rest put together. I use a Clark's smoker charged with touchwood; when filled I pour a little neat carbolic acid on top before lighting; the bees seemed so much quieter. In three lots some of the combs broke off about half an inch from the top, but I had no trouble with them; by the time I was ready to transfer to my own skeps the little honey left was all cleared up. One lot, a cast, hived late in July, about three parts full of comb, two inches of honey at top; the rest was full of honey-dew, which when bumped came out like water, causing a lump of bees, the size of a quart measure, to be in the skep after the combs were removed. I swept them into another skep, tying them up till the next day to see if they would recover or not. When I opened them the next evening they were all right and lively enough. 'Canterburian' must try again. I had a similar case two years ago in August, when it was very hot weather, and a swarm of the same year; I gave a warning at the time. This year I have bumped some in August, but it was cooler weather at the time.—J. H. L. K.

STARTING A BEE-FARM.

[1287.] Replying to your request for information for a correspondent starting a bee farm, I greatly doubt if, with honey at 6*d.* per lb., 'and which will be probably lower,' he would clear the amount per annum he states with one farm, as fifty strong stocks are sufficient for an ordinary district, and they would not, after deducting expenses, clear more than 15*s.* each.

'A Welsh Bee-keeper' should carefully consider before adopting a hive pattern. If storifying, a short box; if longitudinal, a long one; and each has infinite surroundings. Have Association frames; black bees at first; buy them in skeps in the spring, and transfer them, using frames filled with comb foundation and feed liberally at first, or buy at a small cost of those clearing out. I have adopted the long twenty-frame hive, and advised Mr. Brown of Swinehead to do the same, as they, for utility, convenience, and cost, compare favourably with storifying hives. I am selling hives at 3*s.* each that I recently bought of a noted apiarian, and they cost him 10*s.* each—'Irish fourteen-framed ones'—and he more than once lost nearly half his bees.

In consequence of the difficulty of selling honey, Mr. Brown has sold me his apiary and bee-gear. Fifty hives (new) with bees and appliances would cost from 70*l.* to 80*l.* I have no 'axe to grind' beyond getting rid of my honey, and if 'Welsh Bee-keeper' will send me a stamped envelope I will give him more particulars.—ROBERT THORPE, *Swineshed, Lincolnshire.*

STARTING A BEE-FARM.

[1288.] Press of work has prevented me from saying a few words until now in reply to 'A Welsh Beekeeper' (1250). The above heading recalled to my memory some pleasant recollections which seven years ago occupied my thoughts. On one occasion, when spending an afternoon with the late Mr. Pettigrew, of straw-skep fame, I put a question to him much the same as now asked, viz. 'Do you think any one could make a living off bee-keeping?' His reply to me was, he had no doubt but a man could make a living off bee-keeping provided he had a good district and every opportunity; but, he said, should two bad seasons follow in succession, he would require 'a nest-egg to fall back upon.' To proceed, then, to answer briefly 'A Welsh Bee-keeper,' let me take the questions up *seriatim.*

1. Bee-farming as a means of earning a living can only be done by a limited number. Any one aspiring to this position ought to be favoured with the undermentioned conditions. He must be a practical bee-keeper, live in a good district for honey, roll up his sleeves, and able to do the heavy part of the work, and find a good market for his produce. To earn a weekly income of 30*s.* to 40*s.*, I would say one would require to have 160 hives and do all the work of managing, with the assistance of a smart youth, except perhaps during the swarming season, when an additional hand would be useful. During the winter months the youth's services can be done without.

The average price quoted for honey, 6*d.* per lb., would not pay; the lowest price I think any bee-keeper would find remunerative is 6*d.* per lb. for extracted, and 9*d.* per lb. for comb honey. Speaking from experience there are several ways to the bee-keeper for improving his income. I find this year that to produce the finest heather honey, that I realised 4*d.* per lb. above the current price of clover and flower honey. Creating a good market for honey and keeping it up will help greatly to improve the bee-keeper's income.

2. The outlay required to start a bee-farm, say, in spring, on a scale as above mentioned, might be put at 180*l.* for a complete outfit. Here, again, the bee-keeper could lessen this sum if able to do his own hive-making and section-crates during the winter months.

3. The best breed of bees, all things considered, are the blacks; for honey-producing there is no other breed can excel them.

4. The best time to commence is in the spring; it may cost a little more for stocks then, but the risk of winter is over, and the possibility of a return of money is drawing nearer.

If 'A Welsh Bee-keeper' resolves on starting a bee-farm I would advise him to count the cost; he should be an adept in the art, and not attempt too much to start with, beginning with a few hives would be the better way if he has all to learn. For my own part I have every confidence that a living can be made, when in case of bad seasons 'a nest-egg is there to fall back upon.'

I have only expressed my opinions here as working expressly for honey, keeping out of view the selling of stocks and swarms, &c.—WILLIAM MCNALLY, *Glenluce, Sept. 24th.*

BEE-KEEPING IN THE ISLE OF MAN.

[1289.] About the middle of August I crossed over from Liverpool and set foot on the Isle of Man for the first time. Having only a few days at my disposal, and desiring to make the acquaintance of some of the resident bee-keepers and see as much of the island as possible, I took up my quarters at Douglas, as the most convenient centre. The town was very full of visitors; it was therefore an unfavourable time of the year to call upon those engaged in business. However, I visited several bee-keepers on the outskirts of the town, and found most of the bees in bar-frame hives; they were principally the native bee, some few had introduced the Ligurian, the hybrids following as a natural consequence. The drought had cut the season short; the honey harvest, therefore, was scarcely equal to the average. The honey was very good; I only saw one sample on the island approaching a dark colour.

Ramsey and the district around appear to be advancing rapidly in modern bee-keeping. I generally find where there are one or two intelligent bee-keepers who are willing to give advice and assist others, there bee-keeping is sure to advance. Ramsey is thus favoured in Mr. E. C. Kerr and Mr. Harry Corlett. Mr. Kerr was from home taking his holidays, but I saw his apiary. Hives and everything about the place conveyed the idea that he was in touch with the times, and in advance of many bee-keepers. Mr. H. Corlett is a good practical apiarist, and willing to impart his knowledge to others. Consequently Ramsey and district have made considerable progress. I was informed that bar-frame hives had increased upwards of fifty per cent in the locality during the past twelve months. Mr. Corlett being a builder, he manufactures hives, &c. I have not seen better hives sent out by anyone than those of his make that I came across in different apiaries. The worst hives I saw on the island, to my surprise, were from English makers. Mr. C. keeps about twenty stocks, consisting of Ligurians, hybrids, and native bees. He thinks the native bee will bear favourable comparison with either Ligurian or hybrid. The honey I saw from his apiary was good in colour, flavour, and substance. His average this year was about 50 lbs. per hive, some hives touching close upon 100 sections. Clover is the principal source. In the country where cottagers have several stocks I found they were trying one or two bar-frame hives.

I consider the Isle of Man a good place for keeping bees; the climate is favourable and the pasturage good, the bees winter well and come out strong in the spring ready for the early honey, and foul brood is unknown on the island.

Sections were generally of a good colour, the sealing on some very thick, but I did not see half-a-dozen well filled on the island; neither did I see a single shop where honey was exhibited for sale in a tempting form. The influx of visitors to Douglas is so great that I should see no difficulty of retailing in Douglas all the honey produced on the island if I had one small window in the principal street.

A Bee-keepers' Association, with an expert to make one or two visits during the year, would be a great boon to the cottagers and small bee-keepers on the island.—L. WREN, *Lowestoft.*

NORTH-EAST OF IRELAND BEE-KEEPERS' ASSOCIATION.

[1290.] With reference to 'Mr. John D. M'Nally's' complaint (1272) about the judges at this show, I think he is in error in supposing that they knew the respective ownerships of the entries before and while they were judging them; and so far as our department is concerned I know he is. I am sure Mr. M'Nally—whose acquaintance I was much pleased to make at the Belfast show—is actuated by the best of motives, and writes in the interest of all honest-minded bee-keepers, even though his 'Protest' savours of dissatisfaction and hints at unfairness.

Now, at the show in question, I, together with Mr. Ditty, of Newtownards, acted as judge of hives and appliances, and I saw no catalogue or any other list of the exhibitors, and knew not who owned the articles we were engaged on, except what I might guess at, till we had completed our task. Mr. Ditty took the greatest pains in co-operating with me, and though we did not quite agree on every minute point, I can safely say I have never had a more conscientious or painstaking judge to work with.—H. W. LETT, M.A., *Aghaderg Glebe, Loughbrickland, Co. Down.*

THE CO-OPERATIVE FLOWER AND HONEY SHOW.

[1291.] In your issue of September 1st, page 378, your correspondent, 'Amateur Expert,' has been visiting the Co-operative Flower and Honey Show, held at South Kensington on Tuesday, 23rd August. I must protest against the criticism regarding the Scotch exhibit of honey; and being the exhibitor myself I wish to prove to the readers of your valuable *Journal*, that 'A. E.' has no knowledge of what he writes about. In the first place, permit me to say, the exhibitor of the nice lot of sections, designs, and run honey, was John D. McNally, Manager of Cowlairs Co-operative Society, Glasgow, and not Ebenezer McNally, as 'A. E.' reports.

Coming to the run honey, the exhibit was entirely flower honey, and granulated, and did not contain an ounce of heather, as he asserts.

My section honey, which has been awarded first prize at Perth, Belfast, Rutherglen, &c., this season, goes to prove that it is of the finest quality. This, I trust, will show your readers that the Scotch honey, though not awarded a prize, was a splendid sample. And my heather honey was not clouded with wax because I had none there; all the same, I have heather honey, which I can boast of, and if 'A. E.' will supply me with his name and address, I will forward him a sample for criticism, and at the same time will let you have one also, Mr. Editor; and I have no fear to await the result of your criticism, which I shall be pleased to see in the pages of the *Bee Journal.*

I have always admired 'Amateur Expert' as a writer, and do still, but sometimes I think his 'hard knocks' are uncalled for, and should not be allowed to pass unchallenged.—JOHN D. MCNALLY, *Springburn, Glasgow, September 14th.*

[We visited the Co-operative Show held at South Kensington, and can assure our correspondent that his name was not attached to the exhibit, but that of 'Ebenezer McNally,' as 'A. E.' states. The mistake does not lie with 'A. E.'—ED.]

A PROPOSITION FOR HUMBLE BEES.

[1292.] DEAR MR. EDITOR,—I think the two main things why we cannot keep workers and queens of humble-bees through winter are, first, the cold, and, secondly, a short supply of food. Now if, during the summer, we took a nest and transferred their brood and honey-combs to small square frames (already made), tying them in with string, we could feed up during the autumn; and then as winter came on caulk the entrance up (leaving air-holes) and transfer the lot into an attic or some warm place. I fancy by so doing the workers would not seem so inclined to die as they do now.

I am going to try the experiment. I have saved all the old combs of five or six lots of bees, and have strung them into small frames (sections with shoulders would do).

I have been an observer of humble-bees for about three years, and this is my great experiment, viz., to keep workers and queens alive until spring. Any assistance or advice will be very welcome.—DARCY GRIMSHAW, *Horsforth, near Leeds.*

Echoes from the Hives.

Leigh, Kent.—Wasps are numerous this year, very few queens to be seen in the spring. On an estate here last year, the workmen caught over three thousand in April and May, very few nests in the summer, only three or four to be found. This spring about ninety queens were caught, now there are a number of nests being destroyed.

Grantham, September 20th.—Not having seen a report from my immediate neighbourhood, I may say that we have had a splendid honey harvest here; from five stocks I obtained about 476 lbs. of comb and extracted honey of excellent quality, and have increased two, making a total of seven to winter; other bee-keepers have done well also in this district. My best stock (doubled according to Mr. Cowan's instructions) gave 146 lbs. and left eight combs in brood-nest untouched!—N. P.

Springholm, Dalbeattie, September 24th.—According to promise I give you the result of taking my bees to the heather. I took three stocks to the moors at the end of July and left them till last week, and the amount of heather honey which I took off the three was 12 lbs. The only reason I can give for their doing so little is the bad weather which we had here when the heather was in bloom. At any rate, I am afraid I have got enough of migratory bee-keeping, as I do not think I will venture to try it again. —J. C.

[In the previous communication of 'J. C.' there is a mistake; *for* Horticultural Society *read* Highland Society.]

NOTICES TO CORRESPONDENTS & INQUIRERS.

A. M.—*Tainted Honey.*—After removing the section-cases by means of the carbolised sheet, the sections should have been taken out separately, one by one, in some shady corner of the garden; and the few adhering bees, brushed off with a feather, would have returned to the hive. Using smoke after removing the sections was the great mistake. The best plan will be to uncap the soiled sections and pass them through the extractor. If they were all *sealed* you will thus obtain good liquid honey free from taint. Any unsealed ones may be given as food to the bees.

A BEGINNER.—*Unsealed Honey.*—1. Yes. If any combs contain unsealed honey—unless they contain brood also—pass them through the extractor. Unsealed honey quickly becomes acid, and causes dysentery and destruction to the bees during the winter and early spring months. 2. If sufficient section cases are given, by 'tiering up,' as more room is required, a ten-frame hive is large enough for a prolific queen, especially if the outside frames are kept free from honey by extracting when required. Bottom ventilation will usually prevent swarming. It is well, however, to have hives large enough to take twelve standard frames.

N. P., *Grantham.*—*Broodless Colonies.*—On the cessation of the honey-flow, queens often cease to lay for a time. In a strong, healthy colony, however, there ought to be brood in various stages in September. Probably you overlooked the queens. Examine again, very carefully, and if the hives are really queenless introduce queens immediately. It is not likely that colonies which cover nine standard frames are queenless, but if they were so drones would be found—and probably in abundance—in such colonies. The bees, from some whim or other, may have changed their queens.

NOVITAS.—1. *Queen producing Diminutive Bees.*—From her producing both drones and workers in worker-cells, and the workers even being diminutive, it is clear that she is not fit, and should be superseded. 2. *United Bees fighting.*—You should have shaken all the bees off the combs, mixed them with the driven bees, and allowed the whole to re-enter the hive of combs. This is better than trying to scent both lots. 3. *Bees refusing to raise Queen.*—There is most likely a queen existing, although you failed to find her. We have this year noticed drones existing unusually late in hives undoubtedly possessing queens.

LADY P.—*Honey from unsealed Sections fermented.*—If there is merely a layer of thin and frothy liquid on the top of the jars, and the remainder solid and good, by carefully skimming off the thin part, the solid will be good food either for human beings or bees. If the whole mass is frothy, it must be melted down, brought to nearly the boiling point and skimmed when it will be fit for food, but will have lost much of its aroma. After boiling it will keep for a long time.

J. W.—*Honey candying quickly.*—The cause is the source from which the bees have collected the honey. That from rape, mustard, and plants of the same genus, candies almost immediately after extraction. The honey which you say does not candy is probably from clover. The difference has nothing to do with the systems of bee-keeping.

APS.—*Honey difficult to Extract.*—Heather honey cannot be extracted, and the supposed white clover is most likely sufficiently mixed with heather to render its extraction difficult. The best way to get the honey is, to shave off the cells from each side of the comb, as near the midrib as possible, give the combs for the bees to lick up, and preserve to give in the spring to be rebuilt. The shavings containing the honey may be squeezed first, and the wax melted afterwards, when the remaining honey will separate.

FEARFUL.—*Foul Brood.*—The comb sent is affected with the disease now known by the name of *bacillus minor*. It is a severe case.

D. P. and CORWEN.—Foul-broody.

T. HUCK.—Doubtful. We have known bees so peculiar that it would be difficult to verify the fact that any individual bee worked for three hours only. Whenever we open a hive we generally find many ready to commence work; probably they are on the next 'shift,' that is, to shift the intruder. Personally, we have seldom three hours to spare to note the time bees work. The *onus probandi* rests with the writer of the paragraph.

R. R. REED.—The combs will, if well wrapped in paper to exclude wax-moth, keep through the winter at a moderate temperature, and will prove serviceable in spring. Exposure in a warm room when about to be used would be desirable.

F. J.—*Wetted Sections.*—This may possibly be a case where the sections have been left on the hive too long, and the dampness, if not sticky, be the condensed moisture of the hive.

T. WELHAM.—*Pine-wood.*—The resinous odour of the pine-wood attracted the bees, and they would use the little resin they could obtain as propolis. Neither the smell nor taste would make them drunk. In fact they would not taste it.

J. M., *Glasgow.*—The sugar would be more suitable for making syrup than for dry sugar feeding. For the former purpose we should call it 'third-rate.'

A STRANGER.—There are no shows in London at present. Your object would be attained by a visit to Messrs. Abbott Bros.' establishment at Southall, Middlesex, which is not far from your present residence.

J. H. S.—The parasite noticed by you is the *Braula cæca*. It will most probably die off as the season advances.

J. M. B.—*Queenlessness.*—Very few drones are flying about now. The late presence of drones indicates queenlessness. It would be desirable to overhaul your hive, and ascertain if the queen be present.

BEES AND ESSENCE OF LEMON.—The Postmaster-General in his last report states that a post-office in Gloucestershire was in a state of siege for a fortnight by bees attracted by a leakage from a tin of essence of lemon.

Business Directory.

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For particulars see 'British Bee Journal,' page 382.

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THE BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, Cambridge Circus, W.C.

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Editorial, Notices, &c.

MR. COWAN'S VISIT TO AMERICA.

The reception that has been accorded to Mrs. and Mr. Cowan during their visit to Canada and the United States has been most cordial; and bears strong testimony to the good-will that subsists between bee-keepers on both sides of the Atlantic. In acknowledgment of kindnesses received, the following has been forwarded by Mr. Cowan for insertion in the *Bee Journal*:—

We think it only right, in justice to the kindness we have received from our many Canadian and American friends here, to send a few lines to the *Bee Journal* to mention the warm, hearty welcome we have everywhere received, having been guests in several families for days.

We have, throughout our journey, been treated with the greatest hospitality and consideration, and shall ever remember with pleasure our coming over to this New World—so wonderful in its growth and spirit of progress. We shall carry away with us pleasant recollections, many of which appear later on in thep ages of the *Journal*. Suffice it now to say, we are anxious to state this at once that our friends here may see how much we have appreciated their kindness. We leave New York in the *Umbria*, which is to sail on the 1st October.

HONEY-DEW: ITS PRODUCERS.

In our last issue we mentioned the large amount of honey-dew which, especially in dry summers, was to be found on, and falling from, the leaves of certain trees,* and also the extraordinary migrations of aphides, or plant-lice. We purpose now to attempt a slight sketch of the physiology and life of the producers of honey-dew; and we feel assured that it will be found one of the most wonderful histories of the entomological world.

Those who have studied the history and economy of the hive-bee will find those of the aphis equally elaborate; and as with bees the students thereof are continually making new and unexpected discoveries, so those who have endeavoured to probe the arcana of the life of the aphides find themselves ever coming in contact with new questions to engage their attention,—questions which they have not been able satisfactorily to answer. Among the most interesting phenomena connected with the aphides may be mentioned—the injuries they inflict upon plants and trees, their singular migrations, their almost incredible numerical increase, their processes of reproduction, the enemies they have to contend against and their defences against these enemies, and their relations with ants, who so tenderly nurse and cherish them.

The name 'Aphis'* was given to this class of insects by Linnæus; and the minds of many naturalists have been much exercised to account for his selection of the word, and many ingenious suggestions have been put forth for its determination. Among these suggestions, the readiest seems to be that the word is derived from the Greek ἀφιημι, in its sense of *emitto* ('I emit'); having a reference to the very peculiar office of the unique organs known as 'nectaries' or 'cornicles,' from which is ejected the substance to which we give the name of honey-dew.

It is scarcely within the province of a periodical devoted to a special purpose like the *Bee Journal*, to enter into a recondite or scientific history of the physiology of this insect, or to enumerate the numerous varieties of it. Buckton, in his *Monograph*, describes several hundred tribes; and almost every tree—the rose, the apple, the lime, the oak, the beech, the sycamore, &c.—has its special aphis; and some trees have several varieties. The aphides assume different colours according to the plant upon which they feed. That on the rose is green; that on the bean is black; and that on the apple takes a kind of cottony appearance, called 'American blight.'

The bee-keeper, however, is specially interested in the two organisms of the aphis concerned in the production of honey-dew. These are the rostrum or proboscis,† which pierces and sucks the juice, and the two ducts on the posterior part of the abdomen through which is ejaculated the substance.

* M. Boussingault states that in Switzerland the aphides almost kill the trees; and so exhaust them of sap that a single sick tree may produce as much as three kilogrammes (about 6½ pounds) of sweet substance elaborated from the juice.—BUCKTON, vol. iii. p. 36.

* Class *Insecta*; sub-class *Haustellata*; order *Hemiptera*; sub-order *Homoptera*.

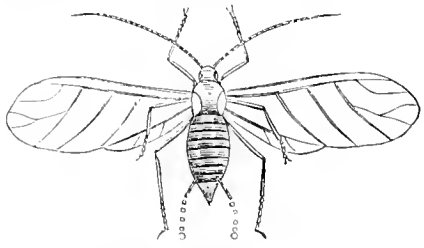
† By some called *haustellum*, from *haurio*, 'I drain' or 'suck.'

The proboscis is an elongation of the *labium* (or lower lip), which is modified into a three-jointed sheath, inside which are three sharp-pointed lancets, which have a backward and a forward motion. This suctorial organ is folded on the breast: by its means the insect pierces the skin, and extracts the juices of the leaves or the roots of plants which form its nourishment. The length of the proboscis varies in different kinds, some being very short, and others quite as long as the insect itself: it is also found disproportionately long in the young of some of the aphides. By means of this organ the juices are drawn into the mouth by a kind of pumping movement, similar to that noticed in the proboscis of the bee.

The function of the nectaries or cornicles is to give off, as the result of the suction of the proboscis, the drops which gradually accumulate at the ends of the tubes. Sometimes, as we have mentioned, these drops fall on the grass saturating with the treacle-like substance the ground, at other times on the leaves, and so choking the stomata, or leaf-pores, and thereby preventing the natural respiration performed by these pores. The nectaries vary much in form and size. In some they attain half the size of the aphis; in others they are very small; while in others they are altogether wanting. There is considerable difference in opinion as to the part these nectaries play in the economy of the insect. The opinion that of late has prevailed is that they have some connexion with the respiratory organs. C. Morren considers them to be nothing more than prolonged stomata, *i.e.* the apertures leading to the tracheal or respiratory system; and he states 'that a considerable lacing of tracheæ may be seen to start from the points at which the cornicles enter the integument.' Also, he asserts, 'that the air replaces the liquid which is ejaculated from these tubes, and that the bubbles so often to be seen within their cavities are evidences of the regurgitation of air.' Morren points out at the bases of the cornicles a gland to which he ascribes the secretion of the usually sweet liquid known as honey-dew, and which he regards as the first nourishing fluid provided for the young aphis. The same naturalist also puts forth the singular idea that there is some similarity between the Aphides and Mammifers, as he maintains that he has frequently seen the young suck the secretion from the tips of the cornicles of the mother.

By the proboscis of the aphis the soft under skin of the leaf is pierced, and the juice pumped out and eventually ejected by the cornicles. The leaves are ever forming starch, which is converted into sugar. It is quite possible that the juice in its passage through the body of the aphis may undergo some change, even as we know that the nectar drawn by the bee from flowers into the honey-sacs is in some degree changed in its qualities. It is doubtful to what extent the juice sucked up by the aphis passes through the alimentary system. This still requires elucidation.

Accompanying this we have given an illustration of an aphis, fifty times magnified, — the *Aphis vastatrix* or *A. dianthi*. C. Morren noticed the first advent of this insect into Belgium, and he states that the countless swarms that spread over that country in September and October, in 1834, came over the



sea from England. He says that the clouds of aphides obscured the light of day, and covered the pavements of the streets. To this insect was at one time ascribed the potato disease, but further research has proved that this was not the case, but that it was caused by a small insect which fed upon the roots.

If we look at the under-leaf of (say) a rose where the aphides love to congregate, we shall find it infested with these insects. The majority of them will be found wingless, but some few are winged, and it is somewhat of a mystery how these latter come there. Aphides are produced from eggs, or are born alive, under certain conditions. The aphides in spring are the product from the eggs of the preceding autumn. They pass through some changes, and they moult four times. The first brood are wingless, and are all females, and being wingless are imperfect females. The second generation is a counterpart of the first, and so on during the summer, to the tenth (or as some naturalists say, the eleventh) generation, without the intervention of a male. The last generation, however, consists of perfect insects—males and females—all winged. These latter are fecundated, and this renewed condition of life suffices for the next ten (or eleven) generations. The females now lay their eggs in autumn, and this closes the year's story.

Not being subject to the usual law of metamorphosis, aphides increase in an astonishing manner. Réaumur calculates that each aphis produces ninety young ones. She lives to see five generations; and if we multiply ninety by ninety four times over we shall find that it amounts to 5,904,000,000; and if the increase were allowed to go on unchecked for a single season it would be found that one aphis would produce a quintillion of aphides. One mathematician has made a calculation that if the generations were continued 300 days, the progeny would fill the universe, land and sea, so that there would not be room for any creatures but themselves. Professor Huxley makes a singular calculation. Assuming an aphis to weigh $\frac{1}{1000}$ grain, and a stout man 285 lbs., the tenth brood of one aphis would be equal in matter to more than 500,000,000 of such men, *i.e.* to more than the whole population of China.

Let us be thankful that there is a law of compensation which steps in and keeps these pests under subjection.

In our next we may consider the enemies of the aphides.

CANADA.

Toronto Industrial Exhibition.

The Toronto Industrial Exhibition is the leading annual exhibition in Canada. The Association recognise the importance of apiculture, and have for the last seven years given a very large sum of money in prizes, besides medals and diplomas. A large space is also granted for exhibition purposes, and Toronto has from year to year the largest display of honey and bee-keepers' supplies on the American Continent. There were about 40,000 lbs. of honey in the building at the commencement of the show, divided amongst a number of exhibitors, amongst which were:—

	Extracted.	Comb.
D. A. Jones, Beeton	10,000 lbs.	
Ira Orois, Whitby	3400	2800 lbs.
Martin Emigh, Holbrook		1600
G. Deadman, Brussels		1500
G. B. Hodgins, Hornings Mills	800	600
Jacob Alpaugh, St. Thomas ..	1500	2000
R. H. Smith, Bracebridge....	300	100
A. G. Willows, Carlingford ..	2150	
Wm. Goodger, Woodstock ..	700	700
R. F. Holterman, Brantford..	1000	1400
E. Thompson, Burgessville ..	300	500
Jno. Davidson, Uxbridge	200	2000
H. J. Howie, Eden	400	400

The honey was put up in a neat and attractive manner, and a large quantity was sold during the show. The principal exhibitors of appliances were D. A. Jones & Co. and Messrs. Goold & Co.

During the exhibition a special meeting of the Ontario Bee-keepers' Association was held in the exhibition grounds, at 7 p.m., on Thursday, Sept. 16. Owing to the illness of the president of the association Mr. J. B. Hall of Woodstock occupied the chair. The occasion of the special meeting was the presence amongst them of Mr. Thos. Wm. Cowan of England and Mr. Ivar Young of Christiania, Norway. The meeting was a very large one, and many prominent bee-keepers from distant parts of Canada were present, thus showing the desire all felt to meet with these prominent bee-keepers from foreign lands. Owing to the fact that our Canadian bee-keepers had last year visited England, and there partook of the hospitality of British bee-keepers, and made the acquaintance of Mr. Cowan, the feeling of kindly interest towards Mr. Cowan was if possible greater than that towards Mr. Young. Before the formal opening of the meeting many examined, under Mr. Cowan's microscope, mountings of the different parts of the bee; these were examined by all with the greatest interest, and were very instructive. The meeting was called to order by the Vice-president. A communication was then received from President Pettit explaining that illness prevented his presence. Vice-president Hall then mentioned the reason of this meeting, and called upon Mr. McKnight to read an address to Mr. Cowan on behalf of the Ontario bee-keepers, which was as follows:—

'*To Thomas William Cowan, Esq.:*

'Dear Sir,—On behalf of the bee-keepers of Ontario we bid you and Mrs. Cowan welcome to Canada. As chairman of the British Bee-keepers' Association, we recognise in you the representative of a body of philanthropic gentlemen who devote much of their time to the promotion of apicultural knowledge among the artisan and labouring classes of your own country.

'We are not ignorant of the good work you have accomplished. We know you have been instrumental in inducing thousands of your countrymen to embark in the fascinating work of bee-keeping, and thus spend their leisure hours in healthful, profitable employment. The fact that the Association of which you are the chairman (with its affiliated branches) numbers some ten thousand members attests the success of your labours. We sincerely hope that you and your associates may be long spared to prosecute the good work so well organized and so skilfully conducted.

'As proprietor and editor-in-chief of the *British Bee Journal* you are better known to the apicultural world than most of your countrymen. Your published works on scientific and practical bee-keeping have won for you a name and a fame far beyond your own sea-girt home. We rejoice in the opportunity this visit affords us of making a closer and more personal acquaintance with you.

'We indulge the hope that your present visit to the United States and Canada, and your personal intercourse with the leading bee-keepers of both countries will increase your zeal in the good work of teaching men the means and methods whereby the earth may be made to yield its increase of delicious and healthful nectar, which abounds in the flora in the fields and in the forests of most countries. The extent to which the honey industry may be developed is as yet but little understood, and he who labours to make it better known is certainly doing as much for mankind as he who makes two blades of grass grow where but one flourished before.

'We are especially pleased that you so timed your visit to Toronto as to be able to witness the display of Canada's industrial products now on exhibition here. A careful examination of these will help you to form a just estimate of what the people of this young country have accomplished within the present generation, and give you an idea of the resources of the Dominion. It will serve to prove to you that Canadians are not drones in this hive of British colonists, and mayhap inspire you with the common faith of our countrymen that

'"If our past has records few
In battle song or story,
Our future rises fair to view,
Gleaming with morning's youthful dew
And bright with coming glory."

'Accept this trifle as a slight, but tangible expression of respect and esteem for you, as a man and a brother bee-keeper, we wish you and Mrs. Cowan a pleasant time while you remain on this side of the Atlantic and a safe return to your home and family beyond the seas.

R. McKnight, Chairman Reception Committee,
W. Couse, Secretary.
Toronto, Sept. 15, 1887.'

A gold-headed walking-stick was also presented to Mr. Cowan bearing this inscription:—'To Thos. Wm. Cowan, Esq., Chairman B.B.K.A. Presented by the Bee-keepers of Ontario in commemoration of his visit to Canada, 1887.'

Mr. Young was then presented, in a humorous but fitting manner, with a meerschaum pipe and case.

Mr. Cowan expressed his thanks to the bee-keepers of Ontario for the address and walking-stick, and for the very kindly and warm manner in which he and Mrs. Cowan had been received by all everywhere on this continent. He then gave at some length the working of the British Bee-keepers' Association. They aimed at getting many to enter into bee-keeping and to keep a few colonies. The method of advertising honey by circulars creating a market was entered into. The examining of experts and their duties were described, their shows and a number of ideas were given to Canadians, which might be made useful in the advancement of bee-keeping in Canada.

Mr. Young then rose to acknowledge the reception he had met with. Although an entire stranger to all personally, and until lately known to few even by reputation, such a presentation had been been entirely unexpected. He trusted that ideas might be exchanged between Norway and America to the advantage to all. He had found his visit profitable.

BRITISH BEE-KEEPERS' ASSOCIATION.

Syllabus of Subjects of Examination for the Second-class Examinations to take place on Saturday, Nov. 12:

1. Natural history of the honey-bee, including class, order, family, genus, species, varieties, &c.

2. Anatomy and physiology of honey-bee, including

transformations, eggs, larvæ, pupa, imago stage, &c., queens, drones, neuters, &c.

3. Products of bees, their origin and functions.

4. Swarming—its causes, objects, method, and varieties, with explanation of operations and uses, prevention, &c.

5. The apiary—its care and management, inclusive of various styles of hives, houses, varieties of bees most desirable; economy, purchasing, &c.; transferring, feeding, and feeders; queen-rearing, nuclei, increasing colonies, dividing, doubling, queen introduction, various cages for and methods of, &c.

6. Extractors—varieties, uses, methods, and operations, &c.

7. Handling bees or manipulating—full description of various methods; varieties of smokers, &c.

8. Comb-foundation—varieties of and manner of fixing in brood-frames and supers or sections of all kinds; machines for making, &c.

9. Honey-plants and trees, or bee flora—most valuable kinds, and seasons of blooming.

10. Wintering bees, various systems, both at home and abroad, with their advantages or disadvantages.

11. Difficulties of bee-keeping — robbing, diseases, remedies, enemies, &c.

12. Calendar of operations for each month of the year, with any short terse axiom you would lay down for general success.

The books recommended are:—1. *Modern Bee-keeping.* 2. *The British Bee-keeper's Guide-book* (1*s.* 6*d.*). 3. *Cook's Manual of the Apiary.* 4. *Root's A B C of Bee-culture.*

Every information respecting the examination may be obtained upon application to the Secretary of the British Bee-keepers' Association, J. Huckle, Kings Langley, Herts. Intending competitors must give one month's notice at least to the Secretary of their County Association.

DERBYSHIRE BEE-KEEPERS' ASSOCIATION.

The annual exhibition of bees, honey, and appliances, under the management of the Derbyshire Bee-keepers' Association, was held on September 14 and 15, and fully proved the great progress which bee-culture has made in recent years, but particularly during the last twelve months. There were twelve entries for bees, sixty-eight for honey, twenty-one for wax, and twenty-four hives, supers, collections, and extractors, besides which there were fourteen entries for bee-manipulation, and five for expert examinations, making the total number of entries 144, which was about fifty per cent more than usual. The honey staged was large in quantity, and much of it was of great excellence as regards quality. Mr. Wood, Paradise, of Lichfield, again produced a fine trophy, while the specimens of honey sent by Mr. Glover, of Rodsley, near Ashbourn, Rev. N. Gresley, of Netherseal, near Ashby-de-la-Zouch, and Mr. A. Simpson, of Mansfield Woodhouse, were of the finest flavour and quality. The hives and appliances were a very interesting feature. In this department Mr. Handby and Messrs. Cooper again entered the lists for excellence, and the judges had some difficulty in deciding upon the merits of their exhibits. The arrangements reflect great credit on the secretary, Mr. W. T. Atkins, of Derby, who seems to have devoted his whole energies to promoting the success of the Association. The judges were Mr. T. Blow, Welwyn, Herts, and Mr. E. C. Walton, Muskham, Newark.

Bees.—For the best stock of bees of any race in observatory hives: 1, Mr. W. Handby, Hasland; 2, Mr. T. W. Jones, Etwall; 3, Mr. T. M. Bryan, and Mr. J. Dickenson, Clay Cross. For the best exhibit of sections, not less than 12 lbs.: 1, Mr. A. Simpson, Mansfield Woodhouse; 2, H. Wood, Lichfield; 3, H. Glover, Rodsley; 4, W. Handby. The best exhibit of honey: 1, H. Wood; 2, Mrs. Foster, Brailsford; 3, T. Austin, Alvaston; 4, Rev. N. Gresley, Netherseal Rectory; h. c. E. Toom, Etwall. The best run honey, not less than 12 lbs.: 1, H. Glover; 2, A. Simpson; 3, H. Wood; 4, Mr. I. Stone, Cubley Carr; 5, J. Pearson, Lea, Cromford.

Bees-wax.—Not less than 1 lb.: 1, Mrs. Foster; 2, J. J. Shipman, Ashover.

Cottagers' Classes.—For the best run honey, 6 lbs. at least: 1, R. Bridges, Harstoft; 2, E. Toon, Etwall; 3, Mrs. C. Hunnybun, Stanton Lees; 4, H. Bramley, Old Tupton; 5, J. Stevens, Breadsall. For best exhibit of comb honey not less than 6 lbs.: 1, J. Rowland, Holbrook; 2. Mrs. Foster; 3, R. Bailey, Derby; 4, T. Wilson, Ashover. For best bees-wax, not less than half-pound: 1, Mrs. Foster; 2, R. Bridges; h. c. G. Waterfield, Shottle. For the best frame-hive, not to exceed 15*s.*: 1, W. Handby; 2, B. Skirmer, Swanwick. For best frame-hive, not to exceed 10*s.* 6*d.*: 1, W. Handby; 2, B. Skirmer. For the best hive made by a cottager, the work of an amateur, price not to exceed 5*s.*: 1, G. W. Foster. For the best super: 1, Messrs. D. and A. Cooper, Derby. For the best collection of hives and bee-furniture: 1, W. Handby; 2, Messrs. D. and A. Cooper. For the best honey extractor. Equal firsts, prizes divided, W. Handby, and Messrs. D. and A. Cooper.

Bee Driving Competition.—1, Mr. G. Waterfield, of Shottle, Belper; 2, Mr. T. Austin, Alvaston; 3, Mr. Joseph Rowland, Holbrook; 4, Mr. D. Cooper, Derby.

Five entries were made for the examination for third-class expert certificates, Mr. T. B. Blow, Welwyn, Herts, being the examiner.

All passed in a very creditable and satisfactory manner.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. Huckle, *Kings Langley, Herts (see 2nd page of Advertisements).*

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

STARTING A BEE-FARM.

[1203.] Seeing that neither yourself nor any other of our able bee-masters and bee-farmers,* have troubled to answer your correspondent, 'A Welsh Bee-keeper's" question (p. 413, September 15th), I will assume the task; for I do think it would be a most lamentable, and damning, coincidence, after so much has been preached by our leaders on this great question of bee-keeping and bee-farming, that any one seeking advice should be given the opportunity of remarking he had been sent empty away. In advancing my views, I need scarcely hint to a 'W. B. K.' the importance of his weighing well my statements. I assure him my best thoughts have been given to this question, and I trust he may find them helpful in arriving at what he desires. Assuming 'W. B. K.' has a good knowledge of bee-keeping and the practical working of an apiary, is not lacking in confidence and steadiness in manipulations, is prepared for some heavy work, and blessed with a stout heart to meet troubles and disappointments (for such do come at times), has good prospects of a ready market for honey, then I do not hesitate to say he may embark in his proposed engagement advantageously. 'W. B. K.' makes no remark upon his locality and his surroundings, I will therefore conclude he has fully satisfied himself as to its suitableness for the establishment of a large apiary, and would hesitate before

* Our correspondent must have overlooked the valuable communications on this subject from Mr. Thorpe and Mr. W. McNally in previous number.—Ed.

proceeding with even a thought of starting a bee-farm unless favoured with ample common for forage for his bees. And I would here venture to suggest to 'W. B. K.' that he build up his apiary by degrees, starting with forty stocks the first season, increasing them as opportunity offers for favourable purchase until 140 stocks are placed. He would thus gather much valuable knowledge at the early stage of his business, which should better enable him to work successfully a more exteusive apiary. The very many and varied little matters that coustantly crop up force upon the bee-keeper the fact that close observation is of the greatest importance. It not unfrequently happens that what would be done in a particular case one time circumstances may make it undesirable to work in the same way auother.

Iu passing, I may just refer to hives. And here we have a very knotty question; of course every maker thinks he sells the best hives, and many, very many indeed, are the varied principles of their workings, each and all are so admirably constructed that no bees can fail to prosper in them and secure a bonnteous yield of honey, if only given a trial! A good, well-made bar-frame hive, simple in its construction, and adapted for the storifying system, purchased from a reliable maker, is the hive I have taken as my guide. I disapprove of home-made hives as a rule; I have rarely seen any such which please me, and I make bold to assert that any oue commencing a large apiary will find it the wisest and best policy to purchase substantial, well-made, accurately-fitted, new hives. I must not be understood to ignore straw-hives; if such are used, let them be of a large size with a flat top and capable of supering, for they would be found very useful and not without profit.

Coming now to bees. Here, again, we have much diversity of opinion, and from experienced men too. For myself I lean to our old blacks, and for a cross, Ligurian and black; I have found both do well, and less trouble in manipulating than some of the other breeds; if convenient it might be of some advantage to place, at a distance of (say) two miles from any other bees five stocks of pure Ligurians.

Respecting the price of honey, as I have so often expressed my views as to a paying average price to the bee-keeper, I will only repeat that if 9*d.* per lb., or more, for good honey cannot be obtained, I would not advise any one to go into bee-keeping as a business alone. By the way, I observe that a strong tendency at the present time, and especially after this grand harvest, is to run down price; and it is not to be wondered at that the timid give way to the benefit of the trader. I have noticed at our fairs and shows persons standing side by side with honey exhibits of equally good quality; one will sell fifty or more 1-lb. jars at 10*d.* and 1*s.* each, whilst the other would only sell a dozen or two at 8*d.* or 9*d.* each: here, then, steps iu the tact and judgment of the vendor.

To commence bee-keeping to the extent under consideration, and, indeed, with any one starting, the best time is the spring, and with swarms of 5 or 6 lbs. weight if possible. Stocks that have wintered well, having plenty of bees, and are healthy, may often be met with reasonable by looking ronud amongst skeppists. The plant, hives, and all requisites, should be prepared during the early months of the year, to be in readiness. Better purchases can be made when trade is quiet than when all is bustle and driving, as will be the case later on in the season.

Having made the foregoing somewhat lengthy remarks (though unasked for), I consider it well to make them as showing in a measnre the lines upon which I have worked, to assist me in arriving at such conclusions as would warrant me making a statement upon so important a question that should not be deceptive or misleading.

The following will, I hope, show what may fairly be looked for from a bee-farm consisting of 140 stocks, under competent management, with a capital of 300*l.*, allowing that the average price of honey be 9*d.* per lb.:—

OUTLAY PROPOSED.

	£	*s.*	*d.*
Store and honey-house	10	0	0
Plant and tools	3	10	0
120 bar-frame hives complete, and stands, at 14*s.* each	84	0	0
20 large straw hives complete, at 6*s.* each	6	0	0
140 swarms, 5 lbs. each 700 lbs. at 2*s.* 6*d.* per lb.	87	10	0
5 Ligurian queens, 8*s.* each	2	0	0
5 cwt. comb foundation, 9*l.* per cwt. ...	45	0	0
2 st. super „ 35*s.* per st. ...	3	10	0
2 gross extra frames, 15*s.* per gross ...	1	10	0
1000 one pound sections	1	1	0
30 extra crates for sections, 1*s.* 6*d.* each	2	5	0
20 honey cans, 2*s.* each	2	0	0
1 honey extractor	1	15	0
2 honey drainers, 7*s.* 6*d.* each	0	15	0
1 wax extractor	0	15	0
10 travelling crates (sections) 2*s.* 6*d.* each	1	5	0
10 „ „ (jars) 2*s.* each ...	1	0	0
6 makeshift hives, 3*s.* 6*d.* each	1	1	0
12 common straw hives, 1*s.* 3*d.* each ...	0	15	0
2 comb-boxes and two syrnp tins ...	0	15	0
Feeders, and sundry small requisites ...	6	10	0
Winter and other quiltings	4	4	0
Chemicals	1	0	0
Incidental expenses in setting up apiary...	5	0	0
	273	1	0
Cash balance	26	19	0
	£300	0	0

PROBABLE INCOME.

	£	*s.*	*d.*
Honey from 140 stocks, averaging 30 lbs. each, 4200 lbs. at 9*d.* per lb. ...	157	10	0
21 swarms 5 lbs. each, 120 lbs. at 2*s.* 6*d.* per lb....	15	0	0
70 lbs. of wax, at 1*s.* 6*d.* per lb.	5	5	0
	177	15	0
Less,—			
Interest on capital, 300*l.* at 5 per cent £15 0 0			
Approximate amount of working expenses 10 0 0			
Assistant labour 6 0 0			
Loss on stocks, &c. 12 0 0			
	43	0	0
	£134	15	0

—R. R. GODFREY.

MEMS BY 'WOODLEIGH.'

[1294.] *Work for B.B.K.A.*—No doubt our friends would be very grateful, after having taught them a trade —how to produce honey. We also still progress in philanthropy, and sell their produce for them at good prices—simply discover a market for them at a good price, and introduce the retailer to them for 1*s.*, 2*s.* 6*d.*, or 5*s.* per annum, as the case may be. Allow me to inform our friend that the members of the committee of the British B.K.A. are far worthier of having a monument erected in their memory than many I have seen have had the honour bestowed on them in my peregrinations in various parts of the kingdom. Take, for instance, the journeys per rail; the valued hours spent in working out the aims; the time spent in reading up and applying the knowledge gained, proving this and rejecting that as unnecessary; busy brains evolving new ideas and putting the same into practice, and pouring out acquired knowledge free as water in the early volumes of our *Journal*—and for what? Simply love of humanity, in the hope of *bettering* the condition of the *poor cottager*. Then 'Sherborne' follows suit, and thinks County Associations should exist for the sale of honey. I think—in fact, I

know—his county sec. (most likely *hon. sec.*) will do all in his power to place him in communication with purchasers, but retailers are not in the habit of writing hon. secs. for honey: there may be exceptions, but it is not the rule. Then, another point (and, my friend, it is a grand point), how you *put up your honey for sale*. Some sections I have seen have looked as though they had been turned out of a cobbler's shop, covered with scraps of wax, rather than out of the laboratory of nature—clean, unblemished. And again, of bottles containing nature's choicest elixir, I have seen them—even in competition (at least, staged as such) for prizes!—with the scum and particles of wax still floating, and forming a veritable crust over the honey. I pity the poor hon. sec. who has to push such produce as that. Still, I admit there is room for advance, and I trust that our British Honey Company will launch out in a new direction, emulate old-established commercial houses and undertakings, and place samples in the hands of old commercial travellers for sale on commission. Here is a system of intercourse, with ramifications extending to almost every village and hamlet in the kingdom. Then, again, a very considerable item of expense in the mode of putting up sections by the Honey Company is the use of cardboard boxes. I am positive that sections can be glazed both sides with strips of gummed or glued paper at sixpence per dozen on a large scale, which would be a saving of a penny on each section, thereby enabling the Company to give the producer one shilling per dozen more for his sections instead of putting it in the hands of German box-makers. Another item, and a larger one than putting up sections, is the expense and nuisance of the bottling of honey. Now I do hope the Honey Company will sell bottles at a cheap rate in the original packages only, and I believe that a good screw-cap bottle could be sold at about 16*s.* or 16*s.* 6*d.* per gross. Then if bee-keepers did not want so many as a gross, they could club together—*co-operate*—and send; and a good tie-over bottle at 10*s.* 6*d.* per gross. Here would be another penny added to the price of honey, instead of going into the dealer's pocket. Another point is that the bottles should be the *correct size to hold one pound of honey*. Some I have seen this season and tested hold only fourteen ounces, others nineteen ounces; in one case the public are cheated, in the other dissatisfied if the bottles are not filled, and to fill same and sell as a pound means giving away a large percentage of your honey (to a grateful public?)

On reference to *B. B. J.* I find it was Mr. Musgrave (1197) who reintroduced the question relative to the correct position of frames. In answer to same on its bearing on the foul-brood question, I cannot see how the position of frames in a bee-hive can influence the propagation or retardation of foul brood in my own apiaries. I have hives on both principles, though all new hives during past five years have been made on the so-called warm or parallel system, and I find my bees as healthy and as vigorous as those in the hives with frame-ends toward entrance. Is it not written in the chronicles of apiculture that foul brood often makes its appearance in an apiary shortly after the introduction of foreign races of bees into said apiary or district? Very probably you may get the infection from some enthusiastic bee-keeper who goes in for all and sundry in the bee world, not omitting the latest discovered strain of *Apis mellifica* in some out-of-the-way nook on the sunny slopes of the Alps, proving that the *germs* must be brought into the hive and not created by any particular kind of hive or position of frame. No doubt at some future time when apiculture comes to be recognised as one of the sources of the wealth of the country, we shall get restrictions as to the indiscriminate importations of foreign bees irrespective of their freedom from disease or not, as at present practised.

Then another prolific source of propagation of foul brood is by the visits of careless experts, who after they have visited an apiary in which they have found the pest still continue their visits without properly disinfecting their appliances and themselves. As regards proper disinfecting I do not profess to be able to give instructions; if empty hives require two years' exposure to kill the germs maybe the woollen garments of the expert would require more; but I do think an expert should discontinue his visits to other apiaries after he has examined and manipulated the hives in any apiary having foul brood. The mistaken kindness of associations in lending appliances, such as extractors travelling from apiary to apiary, possibly carrying the germs of bacillus in them and spreading it far and wide, is another cause; but mapping the counties out into districts, I am happy to say, has curtailed the danger from travelling appliances. Still, there is another and a greater chance of contagion, that is, by purchase of stocks, swarms, or driven bees from infected districts. The only remedy I can see for this danger would be the issue of a map by the *B. B. J.* indicating by red colouring the infected districts, leaving the other parts white with simply the names of the counties and a few of the most important towns marked.

Those harmless, inoffensive creatures yelept wasps, of which 'W. M.' speaks in such high terms of praise in a previous number, must be of very different habits to wasps in my own neighbourhood, or 'W. M.' (glad his initials were not two 'W's') must have championed their cause without any investigation or observation of their propensities or habits of thieving, as to their not clearing out hives in twenty minutes,—perhaps not, but I know from experience they can carry off a pretty good quantity of some things in a short time. I remember some years since—I think in '63 or '64—the wasps carried off during a Sunday over thirty pounds of sugar left in a grocer's sugar-mill. 'W. M.' may think, perhaps, the bees had a share of the plunder, but when the store-room window was closed on the Monday, the besiegers were wasps *only*, proving who the thieves were, so that they were not fly-catching or going in quest of larvæ on that particular day; and to think of 'W. M.' asserting that wasps are as valuable as bees, why, bees have done more in the economy of nature for the benefit of mankind than any other insect in existence.

As many of our bee-keeping fraternity may not be able to get the soap mentioned a short time, I may mention that methylated spirit procurable at any chemist or oil-shop is an effectual solvent for propolis and other stains on the hands, applied with a bit of rag or sponge.

The writer of 1242 must have a novel style of arithmetic if he can manage to crowd into 'less than one shilling' the following articles enumerated in his letter, viz., corned beef box 4*d.*, strips of zinc say 1*d.*, eight frames presumably Abbott's, at 2½*d.*, 1*s.* 8*d.*, putty and paint at least 4*d.*, (paintseller to lend a brush?) 1½ yards of unbleached calico say 4½*d.*: he says, of course, 'there is an outer covering,' costing, no doubt, another 1*s.* with paint and putty, our friend should have said a few shillings, 'not less than one shilling.'

Was it a printer's error that the initials to a recent letter was 'C. A. M.', surely it should have been 'C. R. A. M.' *re* the 30,000 stings, or must we excuse him and think well after the first thirty stings his mind was confused, or that the mistake may have occurred through blindness from the swelling, and he could not see or remember how many cyphers he added after the figure 3. Is the colony of stingless bees still in existence?—WOODLEIGH.

BEES AND MANURE-HEAPS.

[1295.] Bees, we know, are possessed with a very acute sense of smell, and as 'W. J. S.' presumes, this exquisite sense attracts them to the vicinity of manure-heaps. Why such should be the attraction, I am sure I

do not know. I feel confident that if my olfactory nerves were much more sensitive than they are, it would cause me to give such places a 'wider berth.' Bees do visit these places, but in very small numbers. The question is, why do they visit them? Mr. Boyes says, 'to drink of the liquid found there,' and further states that 'my eyes have seen bees *drinking* at manure-heaps,' &c. It is also a fact well known by many bee-keepers—careful observers: it is therefore an incontrovertible fact, a truth. The italics are mine.

Now, Mr. B., don't think that I am going to absolutely negative your assertion, but simply to ask you to notice a little more carefully, and then I think you will agree with what I am going to write. We must jam just a little chemistry into this controversy, but I will put it into as simple a language as I possibly can. The bee on alighting proceeds to the *edge* of the liquid just where it meets the straw or other vegetable substance, or more correctly speaking, on the line of efflorescence; and it is upon this line, the point where evaporation takes place, that the bee's attentions are specially directed. We shall there find that just at this point hippuric acid is formed; that is, an acid contained in the urine of horses or beasts, as its name denotes. The starch contained in the vegetable substances with which it comes in contact, is acted upon by the acid, and thus forms—what?—glucose—sugar. After this a reaction takes place into which we need not inquire.

Now all this sounds very strange, but, nevertheless, it is true as far as the chemistry of decomposing animal excreta is at the present understood; but this is in a very unsatisfactory condition, and very little is known by chemists about the subject, so that everything above may not be the correct theory although it looks very much like it. Well, now don't turn up your nose at honey, because there is just nothing in all this: the amount obtained is so infinitesimal that it would have no effect upon the bulk in the hive, even if this substance were taken without any preparation and placed in the cells; but such is not the case, as after being swallowed by the bee it goes through another transformation, and no doubt comes forth as very good honey. We manure our gardens and enjoy the proceeds, and yet these cabbages, potatoes, &c., have all partially been formed from what has been put in the ground, but by certain chemical changes the same has been rendered fit for human consumption. So it is with the bees and what they collect. We do not eat the manure-heaps when we eat the honey, but only what through chemical reaction has been rendered fit for our use. In the case of honey this reaction takes place in the air—*in* our sight. In the case of vegetables it takes place in the ground—*out* of our sight, the true cause of any seeming disgust.

Now with regard to larval food (not honey alone but a mixture), being stored in the cells before being fed to the bees; this is without doubt an error. Unripe honey will be found stored there, but not prepared larval food; this is a material partially digested by the nurse-bee and fed direct to the larvæ. Kindly refer to *B. B. J.*, page 185, April 28, 1887. I have never found prepared larval food *stored* in the combs contiguous to the larval cells; it has always been unripe honey, the same as stored in any other part of the hive in unsealed cells. The only prepared food found is that minute drop with which the egg is surrounded just before and after it hatches.—W. B. Webster, *Binfield, Berks.*

FOUL BROOD.

[1296.] Having noticed the correspondence for some time past *re* foul brood, I should like to give my first experience of it.

About April this year I discovered that five of my stocks were infected, although when they were packed for the winter there was no sign of it. I immediately placed a small piece of camphor under the frames in each hive, two of them I treated according to Mr. Cheshire's directions, *i.e.* reduced to number of frames bees could cover and extracted all honey that was possible, and poured phenolated syrup into combs every evening, feeding also with phenolated syrup. I also forwarded a piece of comb with brood to Mr. Cheshire, who wrote me that it was undoubtedly foul brood. I carried out this treatment for about four or five weeks, when, becoming rather disheartened at no improvement taking place, I drove them from the hive into two swarm-boxes, destroyed all the combs and frames and fed with phenolated syrup for five days and then hived them both in one hive on frames with starters of foundation only, but unfortunately they had the misfortune to lose both queens, as I did not take the trouble to remove one of them; but one of my other stocks having a sealed queen-cell I cut it out and inserted in the stock, which was duly hatched and fertilised and is going on all right with no sign whatever of any disease; and I may add that all trace of the disease has entirely disappeared out of the other three hives, although nothing was done with the exception of the camphor being placed under the frames, and they now appear to be my strongest stocks. Since I have become acquainted with the disease, instead of using the smoker I have substituted a spray-diffuser with Calvert's carbolic acid No. 5 diluted.—F. Hughes, *Long Lane, Finchley.*

EXTRACTING FROM BROOD COMBS.

[1297.] It seems a pity that there should be any squabbling on this subject. Apparently the original writer referred to extracting from combs in which there is unsealed brood, a practice which for various reasons seems to be undesirable. That bees do go to unsavoury places there can be no doubt. I have often seen them in a pig-stye, and have also seen them in a railway station urinal. Probably, as one of your correspondents suggests, they may be in search of salt which might be supplied to them in a cleaner form.

With regard to drone-comb, that bees *will* have it I have found on more than one occasion. Once, when I had without thought given full sheets of worker foundation, the bees worked it all out but half of the outside of one of the outer sheets, this they made quite smooth, and started a drone-comb from the top at an angle. Another time, under the same circumstances, they made a piece of drone-comb on the dummy at the back. I took this off, cut away a corner of the last comb and inserted the drone-comb, they joined it in neatly, and then were quite satisfied.—J. W. N.

A NOVICE'S EXPERIENCE IN BEE-KEEPING.

[1298.] My experience only dates back to last year. My hives stand within 200 yards of the shafts of one of the largest collieries in the county of Durham, and I was told it was folly to dream of keeping bees in so smoky a district. Last year, 1886, I had one stock which I purchased about three miles away from here (there are no hives nearer to mine than about one and a half miles); it was weak in numbers and yielded that year about 28 lbs. honey in sections and a frame about 5 lbs. In August 1886, I bought a hybrid stock on six frames, they came by rail, and I won't forget the transferring of the frames from that box into the hive I had for them. They are perfect demons those hybrids. At the commencement of this season I worked both lots up by giving sheets of foundation till No. 1 had nine frames (all it would hold) and No. 2, ten frames. On June 15th I bought a swarm and put it into a hive of my own make. I gave it six full sheets and two strips of foundation, afterwards adding two frames of full sheets, in all ten frames: this is No. 3 hive. Results—from No. 1 I have taken ninety-six good 1 lb. sections and a frame of 5 lbs.,

from No. 2, 52 lbs. in sections. I have not moved any of their ten frames, nor shall do so till later. They are all solid so far as I can see: these are the demons. They made the best sections—just solid slabs. From the swarm No. 3 I have obtained thirty-one splendid sections and two frames, each over 5 lbs. weight, and they are left with eight frames nearly all solid. In fact, I was thinking of taking two frames from them in the front, so as to leave them on six.

On July 1st No. 2 hive swarmed, they had on a crate three parts full. I raised it, put an empty one beneath, and put them back in the evening; I did not want to increase the stocks of this race. I took my first sections off on July 7th from No. 1 hive.

On September 10th I drove ten skeps for a gentleman I had made some frame-hives for, one of these was still empty. I fixed six frames with some of the comb out of skeps and put the bees out of four skeps into the frame-hive; the other six skeps of bees I brought away in two skeps and put them into two frame-hives, each on two frames of comb, and four sheets foundation feeding with syrup regularly since. I drove the ten skeps in two and a half hours, and had them to carry forty yards without floor-boards, these being fixtures. I never saw a bee attempt to sting. The gentleman and his family had not seen any driving before, always used the sulphur pit, and they were delighted. They have given up the skep. This, Sir, is my record up to the present, and I have to thank your *Journal* and the useful work *Modern Bee-keeping* for the little I have learnt.

I have tried various new articles, such as apifuge and carbolic acid, but have not had experience enough to give an opinion.—T. T. M.

HONEY BY THE POUND.

[1299.] Having given a report of the heavy yields of honey obtained by the more advanced bee-keepers in some of the districts of Lincolnshire, which yields were secured under what may be considered at the present day ordinary management, I now enclose you a report of the light yields of honey, obtained under what I will style extraordinary management by inconvincibles. I beg, Mr. Editor, you will *not* suppress *this* report, even at a risk of its doing incalculable evil by your publishing it; but *if* you should consider its publication might be the means of driving ten thousand otherwise well-disposed persons into such a state as to render them eligible only for Hanwell . . . . Ah! ah! sup— *no, don't* suppress it, please, let it go, not to Hanwell (might tell the door-keeper at that establishment to be prepared for a rush), but to press, away from page 424 for the present.

I report the following as the results of the honey harvest by some of our genuine old skeppists. During the early part of last month I visited in villages eleven bee-keepers, whose total stocks together numbered seventy-eight, all in straw skeps of the small dome-top make, except three or four which were large and flat-topped. The bees consisted of old stocks, swarms, and casts. Out of the number I drove thirty-six stocks, which yielded a total, as near as I am able to state, of 390 lbs., an average of a little under eleven lbs. per stock. The heaviest of the lot gave seventeen lbs. of honey, the lightest gave 6½ lbs. only. The whole of the hives had more or less of brood in them; the combs built cross-way of entrance, or verging that way in nearly every hive.

Returning again to page 424, I would ask Mr. 'W. N.' how this report suits. He has the opportunity of reading a heavy-weight report and a light-weight report, himself having furnished a mid-weight one. 'W. N.' speaks of suppressing reports of the good takes of honey. Allow me to ask him to glance through a report from 'A Lancashire Bee-keeper' (page 425), 'A Barrow-load of Solid Slabs of Honey-comb.' Here's *an eye-opener* for him. *Only follow nature's simplicity itself:* a few old bricks, and here's a hive for 'nawt,' and honey by the barrow-load. Would 'W. N.' desire that such an interesting report as this should be suppressed?—R. R. Godfrey, *Grantham.*

HONEY BY THE HUNDREDWEIGHT.

[1300.] I find by the last issue of the *British Bee Journal* that I am not the only one who does not get the coveted boon, as per 'Welch Novice' (1270), but friend J. H. Rogers (1266) lets out the grand secret. He says that he 'can with confidence count upon 100 pounds per hive.' But how does he do it? Hear what he says: 'Of course I prevent swarming, and take care to have young *queens'* (the italics are mine) 'at the head of each colony, and I give each hive *thirty-eight to forty frames* of standard size.' Here he has four ordinary colonies rolled into one enormous hive, at least 4 ft. 6 in. long, unless he works on the *tiering system,* and then he produces 100 pounds of run honey; and, I say, a very small yield after all, only amounting to 25 pounds per ordinary hive when divided into four. He says he does not *feed* except for stocks made up of *driven bees.* Now I would like to ask my friend Mr. Rogers two or three questions. Suppose he gets a new stock of bees from driven bees, or from a *new swarm or swarms,* how many swarms or lots of driven bees would he put into this monster hive in order to well cover forty frames? Would he be certain there would not be more than *one queen* preserved among such a vast quantity of bees? Queens are supposed to fight a duel when they meet in one hive, but I think in this case their chance of meeting in such a hive is very small. But suppose Mr. R. starts with only one swarm, with one young queen, would she be likely to fill such a hive with bees, and produce 100 pounds of honey the first season? I say no, she would not; but by putting three or four swarms together, he might. Then, I maintain, it is not the work of one swarm or hive, but the united work of three or four hives or swarms. Another question. Does Mr. R. winter his bees on forty frames, or even twenty? If so, how many frames will they cover by the middle of April? Will they cover six frames? Hence, if there is only one queen, the (to me) impossibility of one queen filling with bees such a hive in time for the honey-flow. I may not be in the happy possession of the necessary moderate skill or intelligence for the successful management of bees, therefore I would be most thankful if Mr. Rogers would kindly answer my questions, and oblige an unsuccessful brother bee-keeper.

From my experience I believe there is often more than one queen in one hive at the same time during the honey-flow. This season I hived a new swarm early in June; the next day another swarm went into the same hive; in the evening I put another hive on the top of it, which was immediately taken possession of; they went to work with a will, and in about seven or eight days they nearly filled the both hives,—being Taylor's observatory,—when they swarmed again (which swarm I lost). I let them remain until they had again well filled the hives with bees; I, about a month since, divided them, putting the one with the most bees on a new stand and quite another aspect. I expected, of course, to see a great commotion in a short time with one of the lots, but, to my surprise, they took it very quietly, and so have remained, only some of the old bees went back to the old stand.

A friend of mine wintered two stocks in one hive with two entrances. In the spring he stopped up one entrance and removed the division-board, leaving them to run together without smoke or in any way disturbing them. They blended together without any fighting whatever, and jointly soon filled the hive with bees, giving a good harvest of honey, but still less than 100 pounds. The hive with one queen could not have filled it in the time. I, therefore, am of opinion that where

we see those large yields of honey from apparently one hive, it is the result of three, four, or perhaps more, swarms united together, hence the production of not one hive but many, properly speaking.

I attribute the smallness of my honey harvest to the long drought. The white clover with us, as well as many other sources of honey, were completely burnt up before one half became properly developed.

I have been anxiously waiting to see if some one had any plan to propose for the better sale of honey without the *middle man,* but as yet no one has ventured to propose a plan except our Irish friend, which is a good one. I think the B.B.K.A. should move in this matter.—SHERBORNE, *Dorset.*

HIVE-MAKING.

[1301.] Seeing a letter in last week's *British Bee Journal, re* above, I though I would give the particulars of my own experiments to those of your readers whose pockets—like my own—are somewhat shallow and light. I bought a currant-box from the grocer's, which was 2 ft. 6 in. long, 11 in. deep, and 13 in. wide (inch wood), at a cost of 3*d.* Finding the width inconvenient, I bought another box for 2*d.*, called, I believe, a pine-apple box, anyhow, branded on one side were the words, 'Pine-apple, preserved in syrup.' This was 18 in. long, 11 in. deep, and 14 in. wide (inch wood). I also bought an egg-box—these can be had for 6*d.*—and thought myself well stocked with material, at any rate for making a *first-class* hive. I now took the currant and pine-apple boxes, knocked out the ends of both, carefully taking out all nails, and nailed the sides of the pine-apple one to the sides of the currant one. This gave me a box 2 ft. 6 in. by 18 in. I then took one 9-in. board off egg-box, which gave me the two inner walls, nailed them 14½ in. apart in the above-named box, which finished body of hive. Now for the floor-board and roof. I found on examining the wood I had left there was plenty to make a moveable floor-board, porch, and a span-roof deep enough to hold a doubling box or two crates of sections. To cover the roof well for winter I painted one coat, then tacked on cheap calico, over which I put two or three good coats of paint. This has made it quite proof against wind and tide. Thus I have a good hive, holding twenty-two frames, a doubling box, or four crates of twenty-one 1-lb. sections (two inches deep and two in length), for the sum of about 1*s.* 6*d.*

I began bee-keeping September 21st, 1886, with one hive; I have now five, three made up of driven bees this year, one an artificial swarm from first hive, so that I begin to feel myself a *real live* bee-keeper.—CHARLES HOWES, *Ayleston Park, Leicester.*

SUPERS LEFT ON BAR-FRAMES.

[1302.] When reading your 'Useful Hints,' that no super should be left upon the bar-frames during the winter I have often wished that the writer had said *why* it ought not to be done. Suppose a crate of unfinished sections remained upon the frames, what injury to the bees would possibly occur? *Warmth* must certainly be one result.

Are not the following 'hints' conflicting? viz., 'the second crops of red clover are affording superior pasturage for our Eastern races, which leave no petal unvisited in search of the precious nectar,' and 'sections should be removed without delay, and the honey extracted from those unsealed.' If bees were gathering 'the precious nectar' on the 1st inst., why should not they be permitted to deposit the article in the cells prepared for that purpose?

My simplicity, it is probable, will create a smile—you won't ridicule me I know—please remember I am only —AN AGED AMATEUR.

P. S. I have great pleasure in being able to add that I saved a colony from a violent death a few evenings ago. Wholesale apiarian murder has been perpetrated in my neighbourhood within the past few weeks, *eleven* stocks in one place, *nine* in another, and many, *many* other groups have gone down the sulphur pit. A friend gave me permission to drive one lot on condition that he witnessed the operation. I succeeded in driving out a quantity weighing in the aggregate *more than two pounds,* which I had the additional pleasure of seeing enter the 'Ark (hive) of safety' on the following morning there to feast on the sweet contents of a bar-frame that I had taken out of an adjacent hive.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

R. WILLIAMS.—*Bees lying out.*—It is unusual for bees to cluster outside the hive so late in the season as the end of September. Warm weather, small hives, and large colonies, may be the cause. Some bees, especially the black race, will lie out in large clusters on the alighting-boards to defend themselves when attacked by wasps or raiding bees.

J. S. WEBB.—*Drones, Queens, &c.*—1. It is the general opinion that drones produced by an Italian queen impurely fecundated, are pure Italians. 2. It is thought best to rear queens from a mother in her second year because she is then in her prime, and surrounded by a larger colony than in her first year; both points being of great importance in producing a strong, healthy progeny.

A BEGINNER.—*Foul Brood.*—The comb sent is affected with 'foul brood.' It is not a bad case, but bad enough to advise the destruction of the stock, if, as you say, there are no other cases in the neighbourhood. Fill the empty combs referred to with a weak solution of carbolic acid, and then allow it to drain out completely, putting them away in a warm place for future use. The combs can be filled by plunging them in the solution, frames and all.

RICHARD WILLIAMS.—*Diseased Brood.*—We are very much of opinion that you have the disease known by the name of *Bacillus minor;* but before giving a definite answer we should prefer to see the comb, or a portion of it, untouched. If you have any more hives, examine them and report their condition. Do this before you touch the stock supposed to be diseased.

G. H. RICHARDSON.—1. *Bees Utilising Wax.*—It is well known that bees will utilise wax, even after it has been rendered into blocks. The very fact of their drawing out foundation into combs is an argument in support of this. We have been frequently annoyed when drying sheets of foundation, after passing through the wet rollers of the machine, at their visits, when they would gnaw the edges and fly off with the spoil. It is a most unusual thing for them to fill up the under part of the feeder. This, no doubt, arose from the circumstance that there was considerable—too much—room between the top bars of the frames and the bottom of the feeder. Thanks for photograph. 2. *Bees with White Backs.*—The white pollen on the backs of the bees is from the giant balsams, which are now in full bloom. When collecting this they will get as dusty as millers; the pollen on their backs they are unable to remove effectually, and so fly forth with it on.

ERRATA.—P. 423, in letter 'Not finding the Queen,' line 7, *for* York *read* Norwich.

P. 432, Third-class Certificates—*for* B. Skerman *read* B. Skirmer.

THE CO-OPERATIVE FLOWER AND HONEY SHOW.—Mr. W. Broomhall, secretary to the above show, writes as follows:—'Mr. John D. McNally has requested me to put the matter of the ownership of the Scotch exhibit of honey at this show right. The entry was made in his name, but how the error in the name upon the card arose I cannot explain.'

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Editorial, Notices, &c.

BRITISH BEE-KEEPERS' ASSOCIATION.

The usual October Meetings will take place at 105 Jermyn Street on Wednesday evening next, October 19th.

The Meeting of County Representatives will take place at 4.30. Secretaries of County Associations are requested to advise their representatives of this meeting.

The Quarterly Conversazione will commence at six o'clock. Members wishing to introduce subjects for discussion, or to submit new inventions and improvements relating to bee-culture, are requested to communicate with the Secretary without delay. This meeting will no doubt prove an interesting one, as Mr. Cowan who has just returned from visiting the United States, and having inspected some of the largest apiaries in the world, hopes to be present.

HONEY-DEW: ITS PRODUCERS.

In our last issue we noticed the enormous fecundity of the aphides. Bee-keepers, not desiring that the genuine produce of their bees should be contaminated by honey-dew, have especial cause for rejoicing that there are many insects whose life-mission appears to be the reduction and destruction of aphides. Stormy weather and heavy showers sweep them away likewise by myriads.

The foremost of these insect enemies is the lady-bird, or lady-cow (*Coccinella septempunctata*). As the locust-eating thrush is always to be found accompanying the locust so does this insect seem ever to be in pursuit of the aphides. The food of the lady-bird appears to be almost exclusively the bodies of these insects. In the *Journal of Horticulture* of September 22, 1887, a correspondent dating from Whitcroft, Pershore, writes:—'On Saturday last about half-past three in the afternoon we had a great swarm of lady-birds, thousands upon thousands; we could distinctly hear the noise of their flight. Is it usual for them to move in such large numbers? Have they been seen elsewhere?' There can be no doubt that these visitants were in quest of the aphides which commit such devastation in the hop-gardens.

Mr. Buckton, in his *Monograph of Aphides*, says of lady-birds:—'The marvellous voracity of lady-birds is shown equally in their larval and their winged condition. The former stage may be commonly seen throughout early summer as slaty-grey or brown six-footed creatures, covered with tufted tubercles, and provided with mandibles efficient both for holding and sucking out the juices of their victims. In some years the imagos are wonderfully numerous, and when they take wing, form vast swarms, which travel great distances. By their sudden appearance in a district they often raise popular astonishment. In the year 1869 such a cloud passed over a large part of Kent, Sussex, and Surrey, alighting on the footways of Maidstone, Guildford, and Midhurst, and making it difficult to avoid crushing hundreds under foot. In the autumn the perfect insect often enters houses for hybernation, and clusters of many hundreds may be seen in crannies and under the ceilings, and in the angles of the walls of houses within the hop districts. These clusters sometimes are so large that a half-pint measure would not contain them. Although the coccinella is not restricted to the hop aphis for its food, it frequently follows its migrations, and travels on the same winds. It is also a valuable visitor to the apple orchard, and destroys thousands of *Aphis mali* and *Aphis pruni*. Whilst feeding the aphis is seized by the lady-bird near the back, and the liquid contents are quickly sucked out of the abdomen, about one minute being required for this process. The aphis is held and manipulated by the jaws and palpi of the coccinella, and the devouring operation proceeds, amidst the struggles of the victims, from the tail to the thorax, which parts, together with the head and legs, are finally rejected.'

The special aphis which falls thus a victim of the lady-bird is the *Phorodon humuli*, and the ravages committed by these insects on hops are very great. It is stated that in the year 1802 the excise duty paid on hops of the previous year fell from 100,000*l.* to 14,000*l.*, and this falling off was ascribed entirely to the ravages of this insect. In 1833 it is stated that the duty paid for hops when 'the fly' was absent amounted to half-a-million.

It is very fortunate that in most countries the children take lady-birds under their protection. In France they are considered sacred to the Virgin, and are called *Vaches à Dieu, Bêtes de la Vierge*, &c., and in this country the frequent mention of lady-birds in our juvenile ballads insures them kind treatment from young people. The hop-growers are fully sensible of the value of the services of these insects, as they hire boys to prevent the birds from destroying them.

Besides the Coccinella, there are other aphidivorous insects which subsist on aphides. There is a beautiful genus of winged flies (*Hemerobius*), their wings resembling the finest lace, the larvæ of which are such voracious devourers of the aphides that Réaumur has named them 'the lions of the aphides.' When among the aphides they are like wolves in a sheep-fold, and the ravages they make among them are very great. It takes

them only half-a-minute to suck the largest aphis, and there is one species which clothe themselves with the spoils of their helpless victims. Many species of the *Syrphidæ* are also very destructive to the aphides. Their grubs are armed with a singular mandible, furnished with a kind of trident with three points, and with these they transfix their prey. Dr. Kirby says:—'They may often be seen laid at their ease under a leaf or upon a twig, environed by such hosts of aphides that they can devour hundreds without changing their station; and their silly, helpless prey, who are provided with no means of defence, so far from thinking of escaping, frequently walk over the backs of their enemy, and put themselves in his way. When disposed to feed, he fixes himself by his tail, and, being blind, gropes about on every side, as the Cyclops did for Ulysses and his companions, till he touches one, which he immediately transfixes with his trident, elevates into the air, that he may not be disturbed by its struggles, and soon devours. The havoc which these grubs make amongst the aphides is astonishing. It was only last week that I observed the top of every young shoot of the currant-trees in my garden curled up by myriads of these insects. On examining them this day, not an individual remained, but beneath each leaf are three or four full-fed larvæ of aphidivorous flies, surrounded with heaps of the skins of the slain, the trophies of their successful warfare; and the young shoots, whose progress has been entirely checked by the absorption of sap, are again expanding vigorously.'

There is also a small ichneumon-fly (*Ophion luteum*), which alights on the body of the aphis, and deposits an egg in it; the wounded victim then separates from its companions and dries up, having the larva within it.

It only now remains for us to describe the singular relationship of aphides and ants. In all accounts of honey-dew it is agreed that bees and ants are very fond of it. The loves of the ants and aphides have long been celebrated. Wherever the latter are found there will the former be seen very busy; the object of their presence is to suck the saccharine juice which exudes from the nectaries. When the ants are at hand, they watch the moment when the aphides eject the fluid and at once suck it down. It is also said that the ants have the power of making the aphides yield the nectar at pleasure, or we might say 'milking them.' Linnaeus says, 'The ant ascends the tree that it may milk its cows, the aphides, not kill them.' When they do so, they use their antennæ for fingers; with these they pat the abdomen of the aphis on each side alternately and rapidly, and after the drop has been obtained they pass on to another aphis. P. Huber, who studied the habits of ants for many years, has told us some almost incredible stories of the treatment of aphides by ants. He says that a certain kind of ants regard the aphides as their special property, and are ready to fight for their possession, and that the *Aphides radicum*—which derive their sustenance from the roots of plants and grass—are kept in large numbers in the nest of the yellow ant (*Formica flava*), so that there may be always at hand a plentiful supply of food, these aphides and their eggs sharing the solicitude of the ants equally with their own eggs and young.

Strange as these statements are, such are the wonderful instincts of ants that it does not behove us to regard them as incredible, seeing they are given as the result of patient research by scientific investigators. Mr. Buckton, in commenting on the above phenomena, says:—'It will be unwise to put limits to the peculiar phases of insect economy. Extraordinary ingenuity and unexpected habits are continually pressing on the observation of the entomologist. Perhaps the only safe conclusion arrived at with reference to aphis and formica [ant] is, that the latter is a considerable sugar consumer, and that like man it also is a fosterer of pets and favourites.'

Reverting to honey-dew, we find that many curative virtues are ascribed to it. In some parts of Italy the villagers collect it from the elm-tree, and it is used for dressing wounds under the name of Olia di S. Giovanni (the oil of St. John). The knowledge of the healing qualities of honey-dew is not confined to Italy. Bonnet says that both physicians and ants rush to aphides for their secretion—'of which medicine use is made.' Mr. Cooke, in the *Entomological Magazine*, says that 'the liquid found in the pseudo-galls of the elm is, under the name of "Eau d'orme," collected in France, and is supposed to be a cure for sore eyes. After the galls are dried, a balsamic residuum is found within them, which, under the name of "Baume d'orneau," has some reputation for diseases of the chest.'*

It would be very desirable if the intelligent analyst of the British Bee-keepers' Association (Mr. Otto Hehner) would undertake an analysis of honey-dew. We should thus be able to judge whether its component parts are as bad as represented by some bee-keepers. The analysis that we have given from M. Boussingault has been questioned by another eminent chemist, and therefore cannot be pronounced to be satisfactory.

Our observations on honey-dew and its producers have extended considerably beyond our intention when we selected the subject for comment; but our apology is that one part has so insensibly led to another that we have found ourselves compelled to treat it more fully than we had originally intended.

CANADA.

We are enabled, by the aid of the *Canadian Bee Journal*, to give a fuller report of the remarks of Mr. Cowan on the occasion of the presentation of the address and walking-stick by the Ontario bee-keepers at the Toronto Exhibition, than that of last week.

In replying to the address Mr. Cowan stated that when he received the invitation to visit Toronto, he had no idea of being made the recipient of any souvenir at the hands of the bee-keepers; he had found much pleasure in the visit, both to himself and Mrs. Cowan, and the present moment found him unable to express his feelings. He felt that British bee-keepers would accept the souvenir and address as a mark of esteem to themselves. Until now he had had no idea of the extent of Canada's resources; in 1862 Canada had sent a fair exhibition to England, but that of last year had been a great improvement. He was very much struck with the products he had here seen on exhibit, particularly was he pleased with that of the Great North-west. In the honey department he found a magnificent display of honey; the exhibits were made by but few exhibitors but on a large scale.

Speaking of the British Bee-keepers' Association, he explained that it was a philanthropic society whose desire was to get as many cottagers and others in moderate circumstances into the business as possible—they wanted everybody to keep bees—the society was formed as a means of bettering the condition of the working classes. The Association distributed thousands of circulars explaining the uses of honey as food. The Canadian commissioners did a great deal last year in popularising honey among the masses. The Canadian system of selling 'honey on a stick' did not commend itself to him. England would not copy them in that respect. The B.B.K.A. endeavoured to get as much wealth and as many great people in their ranks as possible. The President of the Association was the Baroness Burdett Coutts, a lady far famed for her philanthropy and liberality. The Vice-Presidents were members of the Royal Family and the principal nobility in the land. The head centre of the Society was in London, and the counties were generally taken as dis-

* Buckton, vol. i. p. 44.

tricts. The Lord-Lieutenants of the counties were generally chosen as presidents of the county associations. Each of the branch societies was represented in the London Association by two delegates, and there were at present forty-two branches. The head association meets the delegates once every quarter, when all the business relating to the county branches was considered. The counties were again divided into sub-districts, and over these were appointed local advisers. All the shows are held under the auspices and rules of the head association. When branch associations are to be organized, lecturers are sent out to explain the advantages of bee-keeping, and circulars are distributed explaining 'how bee-keeping may be commenced' and the cost. After the local association is formed and they comply with the conditions, showing that their new organization is in good standing, the central board receives the application, and if everything is satisfactory the new society is taken in and 'affiliated.' Experts are appointed by the central board, after examination, in three classes—a third-class expert is usually a good practical bee-keeper; a second class must be further advanced, while the examination of a first-class expert was very severe, and required a thoroughly practical and theoretical as well as scientific knowledge of the business. The duties of the experts are to visit each fall and spring all the bee-keepers who desire their services in the district for which they are appointed—this is all done free of charge. The time allotted to each bee-keeper is three-quarters of an hour; if more time is requested by the owner of the bees, a small extra fee is charged.

Before closing, he said that he desired to say that the Ontario Commissioners did their work wonderfully well at the Colonial Exhibition. Britons had tried to do their duty, but failed, because they could not entice them to leave their work. The delegates said their object was to sell honey, and sell it they did. He (Mr. Cowan) would return to England with very pleasant recollections of his visit. He had one weakness, and that was to possess a walking-stick from any countries he was visiting, and he had just been suggesting to Mrs. Cowan that he should have to get one before returning. There was nothing he would have preferred more, and the stick would always remind him of the happy time they had spent in Canada, and it would be handed down to future generations as an article of much interest.

Amidst much applause, Mr. Cowan sat down, and was followed by Mr. Young, who begged to be excused from more than expressing his heartfelt thanks to the association for his kindly reception. He assured those present, that should any of them ever visit Norway, he and his brother bee-keepers would be only too glad to show them hospitality. He would never forget his visit to Canada, and he would carry home many pleasing recollections of his trip.

Mr. Allen Pringle was then called on by the chairman and he expressed his pleasure at being present. He was just recovering from the most severe illness of his life, and he had strained a point to be present. He had been grievously disappointed that he had been unable to receive Mr. Cowan after extending the invitation and having him (Mr. C.) go so much out of his way to accept it. He felt that there was room for much improvement in their own association. It was a good thing to encourage everybody to keep bees, though there were those who were inclined to keep the art within the select few. As to their stage of advancement as bee-keepers, he felt that Canada was equal to Britain, in fact, she was, in his opinion, equal to any country in the world. After some further remarks by Mr. Pringle, he was followed by the Rev. W. F. Clarke, who said: 'It affords me great pleasure to join with my fellow bee-keepers of the Province of Ontario, in welcoming our visitors from the mother-land, and from remoter Norway. I am especially glad to have the opportunity of uniting in expressions of esteem and gratitude with which we all regard our friend—for such he has truly proved himself—Mr. T. W. Cowan. We have learnt from our commissioners to the Colonial and Indian Exhibition, with what unwearied kindness he laboured to promote their personal comfort and the success of their mission to England, and we all say from our very heart, "Thanks, a thousand thanks." I would have liked the inscription on the cane to have recorded our gratitude, but though the engraver has done wonders with the space at his disposal, it was not possible to include all of which we wish our little present to remind him. Let me emphasize our thanks as the very first thing he is to remember when he picks up or looks at his "walking-stick," which we all hope he may live to carry for many, many, happy, useful years. Mr. Cowan's address is fruitful of points on which I should like to touch, did time permit. I think we may take a leaf or two out of English apiculture to advantage. The plan of sending round experts to give private instruction and public lectures on practical bee-keeping, is one that we shall be wise to copy. Our English brethren, we have heard, do not encourage making a specialty of bee-keeping. They believe in spreading it all over the country, and interesting the masses and the millions in keeping bees. So do I. During all the years that I have been at work in the promotion of this pursuit both by tongue and pen, I have sought to popularise it, and especially to induce farmers to go into it on a limited scale, in connexion with other branches of husbandry. Bee-keeping is a branch of agriculture, and bees belong properly to the live-stock of the farm. I believe too that the logic of events will bring round this state of things. Our specialists have suffered much during the two bad seasons just passed, and must surely begin to see that it is not wise to put all their eggs into one basket. Moreover, in large apiaries, it is terrible when foul brood breaks out, and it is far less likely to spread when bees are kept in small apiaries widely scattered. This kind of bee-keeping also renders it far less easy to over-stock a bee-range. Our American brethren, some of them at least, are inclined to invoke the protection of law on behalf of specialists, but it does seem a rather hard thing to forbid people from going into this fascinating pursuit in a small way because a monopolist has acquired exclusive territorial rights. I cannot think this style of bee-keeping likely to be that of the future, but rather that the English method in this particular will become increasingly equivalent. With best respects and kindest wishes on behalf of our visitors I beg to conclude these few imperfect remarks.'

Some remarks were then made by Messrs. Jones, Corneil, McKnight, Clendenning and Emigh, all expressive of their pleasure at meeting Messrs. Cowan and Young.

Mr. Cowan also spoke, at length, respecting the extent of the bee-pasturage, compared it with that of the old country, and recommended a more extended development of the home market.

USEFUL HINTS.

Weather.—Again we are favoured with fine, mild weather, and bees are flying freely, and carrying home loads of pollen. Several of our colonies are breeding more extensively than we like at this late period; and numerous drones are on the wing, notably Italians and Cyprians, so that with brilliant sunshine, as we write, several late-hatched queens will have an opportunity of mating.

Late Fecundation.—If suitable autumnal weather—a fine, bright October could be depended upon, we see no reason why fecundation should not be as successful now as earlier in the season. Indeed, we have on several occasions had queens fertilised in October which proved to be of more than average fertility. Three years ago

we procured the pure fertilisation of an Italian queen on November 6th. This queen we still possess, and she has proved herself a prolific mother. This we consider an exceptional case, as also is that of a Cyprian queen which mated on the thirty-first day of her age, and proved a good mother. One great advantage of late fecundation is that a queen may be mated with a drone of any selected race with much greater certainty than at an earlier period of the year, when ordinary drones are most abundant.

Winter Preparations should be completed as soon as possible. On this subject we may refer our readers to former 'Hints,' but we wish to reiterate the advice to keep none but strong colonies for wintering, unless it be a few well-stored nuclei for supplying queens, which are often required at spring. Contraction of hives and union of weak colonies may still be effected during fine weather. We do not, as a rule, recommend the wintering of colonies which cover less than eight standard frames. Upon these frames the bees should be crowded, by means of division-boards, and well covered by warm quilts, chaff-cushions, or section-cases filled with chaff, or cork-dust. As before stated, we cover with enamel sheets, warm quilts, and straw covers capping the whole. Under this treatment some fifty colonies passed through the last winter, severe as it was, in perfect health, and without a single loss, but with entrances at summer width.

Syrup-feeding should have been completed ere this; but where it has been neglected, it may still be carried on during fine weather. In a cottagers' manual, lately issued, we find in the monthly calendar of operations, under the heading '*September*,' 'Rest and be thankful.' For that important month no other advice is offered. But going on to October, we are advised to 'commence feeding early in the month,' and under November 'to finish feeding early in the month.' These directions are contrary to our preconceived ideas in modern times, and we fear that the cottager who complies with them, in case of a cold October, will find his weak colonies, which required food in the autumn, requiring none at spring.

Clearing Up and Stowing Away.—During the present month the only work requiring attention should be a thorough cleaning, drying (where necessary), and storing of all apiarian appliances. Extractors, especially, should be thoroughly washed, cleaned, and dried, before being put aside for the winter. The same rule applies to all utensils used for honey or wax. The apiary should be rendered neat and tidy; and a little sawdust, or sand, scattered around the hives will tend to preserve bee-life. Combs of sealed honey, which have been removed from colonies having more than sufficient, must be wrapped in paper and stored in dry and warm rooms or closets to be ready for spring use, in preference to feeding with syrup.

Uniting.—Unions of weak colonies, weather permitting, may still be made, if neglected hitherto, and queens may still be introduced. But to all we say, Get these operations performed as soon as possible, and do not attempt them at all in unsuitable weather. Better it is to forego them than to ruin colonies by manipulation in cold, wet, and stormy weather.

Roofs.—Especially be careful to ascertain that all hive-roofs are water-proof, and all stands sound and firm.

Observatory Hives.—Let frames and bees be transferred at once from observatory to well-made wooden hives, and securely packed, as advised above, for winter. It is almost certain death to colonies to attempt to carry them through the winter in glass hives.

Entrances.—As soon as robbing and wasps have disappeared open the entrances of the hives. These should not be less than six inches in width and $\frac{3}{8}$ in. in depth. Healthy ventilation and dry hives will thus be secured; and, having attended to all these suggestions, *then*, we say, '*Rest and be thankful.*'

Our Censors and Mentors.—Although, in the space allowed to us, we are unable to enter into controversy or to assign a reason for every scrap of advice given, nevertheless we are always willing to explain any apparent discrepancy, or any view to which exception may be taken when advanced in our department. On the other hand, we will not hold ourselves liable to answer trivial exceptions, put forth for the sake of leading up to controversy, or from other motives which we have no desire now to investigate. If our experience in apiculture, together with the daily practical work in a large apiary, conducted on modern principles, is insufficient to qualify us for giving advice; or if we have failed to display sufficient *vox*—to use a very expressive term—in our contributions to the *Journal*, we are more than willing to lay down our pen and to make room for others to take our place, of whom, we are perfectly well aware, there are sufficiently well-qualified candidates. But, after digression, to the point.

Hans Erslev and Drone Comb.—First, as regards the building of drone-comb. We were pleased to see the Danish editor's, Hans Erslev's, remarks on this subject. Our short statement was not intended to advance any theory on the building of drone-comb, and we made no wonderment of the case related, as Hans Erslev seems to suppose. For nearly half a century we have been fully aware of the propensity of the bees to build drone-comb for the storage of honey. This, however, is almost always placed outside the brood-nest, and usually as remote as possible from it. In the old-fashioned *supers*, drone-comb was the rule and not the exception, and during the present season many of our sections, supplied with full sheets of the finest thin worker foundation, were filled with drone-comb built thereon, and stored with the finest quality of honey. But the peculiarity of the case we related was this: that the lower halves of all the combs consisted of drone-comb, built upon the most perfect worker foundation of which we have any experience, which we have used extensively for several years, which hitherto has been built into perfectly beautiful worker-comb, and of which one dealer alone relates that he sold in one year in this country about 50,000 lbs. weight; and he is not the maker, neither has he more interest in the sale of this foundation than of any other. So much for the quality of the foundation of which Hans Erslev says, 'I am sure it was bad foundation.' That the drone-comb in the central frames in the case related was not built for storage was proved by its being filled with drone brood. The queen (a favourite) is in her prime, the drones have all been destroyed, and the hive has a large population of Italian workers. It is no difficult matter for the bees to cut away the slightly raised wall-bases of worker-cells on the flat-bottomed foundation, leaving the flat septum intact, and to build thereon drone-cells. In a cottager's skep a few weeks ago we met with a case precisely similar, except that no foundation was given. Here, too, the lower halves of the combs consisted entirely of drone-comb, and the upper halves were well stored with honey.

An Aged Amateur regrets that in the 'Useful Hints' of September 1st we admit 'that no super should be left upon the bar-frames during winter,' and also regrets that we did not say '*why* it ought not to be done.' In the first place, 'Aged Amateur' should quote us correctly. The whole advice on this subject consists of a few words, viz., 'sections should be removed without delay where neglected hitherto, and the honey extracted from those unsealed.' The word 'winter' is not mentioned. However, our advice certainly is that no sections should be allowed to remain on the hives during winter, and for a good reason. If they contain unsealed honey it will quickly ferment, become acidulated, and

cause dysentery. If the honey is sealed it will granulate and become very like lumps of ice. And lastly, but by no means the least evil, the section-case will cause dissipation of the heat ascending from the bees below, and condensation will take place and cause the moisture to descend upon the combs and bees, rendering the whole damp, mouldy, and thoroughly unhealthy, and during long and severe frost the inner sides of the case will be covered with sheets of ice. Therefore we say, 'Remove your section-cases, and contract your hives for the winter, allowing as many combs *only* as the bees can fairly cover, and place over the frames woollen quilts, chaff-trays,' &c. Again, we never use the word '*bar-frame*' or '*bar-frame hive*.' Frame and frame-hive we think amply sufficient to describe what is meant. A frame is a frame without the prefix *bar*, the meaning of which we should be sorry to be asked to define. But 'Aged Amateur' charges us, moreover, with making conflicting statements — which, we suppose, means contradictory— because we advised the removal of sections, without delay, on September 1; while at the same time we asserted that *our Eastern races* were collecting honey from red clover, and wittily (witlessly?) remarks, 'If the bees were gathering the precious nectar on the 1st September, why should not they be permitted to deposit it in the cells prepared for that purpose?' Could anyone really be so simple-minded as to suppose that we recommend the removal of sections while they were rapidly being filled? Like 'An Aged Amateur,' we are on the 'down-hill of life,' but not yet, we trust, in our dotage. So we allowed *our* sections to remain, and subsequently removed many of them beautifully filled with luscious nectar collected from our red clover fields by *our Eastern races*. But since, perhaps, not one British bee-keeper in a thousand keeps the *Eastern races* (and in our experience black bees do not gather nectar from red clover), and since, owing to the long-continued drought in most districts, there was no red clover to be rifled of its nectar—ours being an exceptionally strong loamy soil which retains its moisture longer than most soils, our second crops of red clover were productive of nectar—and since, also, the honey-flow in most districts had ceased long before the first September, and we write for the *masses*, the beginners, and the ignorant, *therefore* we advised the removal of sections on September 1. Our contemporary, *The Bee-keepers' Record*, in its current number of October 1, p. 200, remarks: 'We hear, more often than many suppose, of surplus honey being "still on the hives" so late as October. Why it should be so, in the face of our constantly-repeated advice to the contrary, we do not know, except it be that some of our readers are too busily occupied in other ways to pay any attention to their bees at this season. This, it need hardly be said, is not sensible bee-keeping, and is sure to end in failure.' So that, although we have not practised what we preached to others, yet, in giving the advice, we have sinned in good company. We write thus simply to give a reason for the advice offered to those who need it, and not from any expectation or desire of influencing skilled apiarists like the 'Aged Amateur,' who will no doubt continue to keep his supers on the 'bar-frames' through the winter months.

A Mouse in a Bee-Hive.—While packing hives up for the winter at Shipley Glen, Saltaire, I came across the skeleton of a mouse in a straw hive. The creature had managed to creep in, but it had no sooner entered than Mousy was stung to death, and the bees, unable to carry off the carcass, carefully removed and conveyed outside the hair, the skin, and flesh, leaving the skeleton neatly picked. The parts of the mouse they could not reach were neatly sealed with wax from the air, and there was not the least particle of smell in the remains of the little quadruped. —Wm. Dixon, *Belmont House, Beckett Street, Leeds, October 4th.*

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.*' *All business communications relating to Advertisements, &c., must be addressed to* Mr. J. Huckle, *Kings Langley, Herts (see 2nd page of Advertisements).*

*** *In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

OUR HONEY IMPORTS.

The total value of honey imported into the United Kingdom during the month of September 1887 amounted to 2092*l*. (From a return furnished by the Statistical Department H. M. Customs to E. H. Bellairs, Wingfield House, Christchurch.)

HONEY YIELD—YOUNG QUEENS—HIVES.

[1303.] I notice in your issue of October 6th that 'Sherborne' (1300) asks me a few questions, and I will briefly answer them. In saying that I took care to have 'young queens at the head of each colony' I did not mean that I had more than one queen in a hive, and regret that I misled 'Sherborne.' He says that as I prevent swarming and give thirty-eight or forty frames to each hive I have 'four ordinary colonies rolled into one enormous hive.' Of course if he expects to quadruple the number of his colonies every season, and only allows a colony ten frames, he must not expect much surplus honey.

In reply to 'Sherborne's' question as to how many stocks of driven bees or swarms I put into one hive, it entirely depends upon the number of bees in each stock or swarm. In one case this autumn I put the driven bees from four small skeps into one ten-frame hive, and a few days later I drove those from a very large skep and obtained enough bees from it to cover ten frames, and did not, therefore, unite any others to them.

It would be only waste of winter stores to put into one hive sufficient bees to cover forty frames as mentioned by 'Sherborne.'

In reference to what he says about queens, I always inquire from the owner the age of the queens, and when driving destroy the old ones, allowing the young ones to fight for the throne. 'Sherborne' need not have any fear that more than one queen will be left alive when stocks or swarms are united. He asks whether if I start with a swarm the queen would be likely to fill with bees a hive of forty frames the first season. I certainly think not, but have never tried; and he must bear in mind that it is one thing for bees to fill a hive of forty frames and another for them to require that number to entirely prevent swarming and get the largest possible honey yield.

'Sherborne' also asks upon how many frames I winter my bees? As a rule ten, never less, and rarely more than twelve. He also asks whether a stock which only covers six frames by the middle of April, would require forty frames at the time of the honey flow? I should say they would not; but with such backward stocks one cannot expect good results. Twelve frames at least ought to be thickly covered with bees by the end of April and twenty by the end of May.

The hives I employ are of two kinds—long ones with twenty frames, upon which I place a doubling box long enough to hold twenty more; and short hives with twelve frames, and two doubling boxes containing

fourteen frames each. When I put on doubling boxes I always put empty combs or foundations in the lower section of the hive, so that the bees pass them when going in and out. It is by adopting this principle, and very carefully shading the hives and giving a great deal of ventilation that I have for the last four years entirely prevented swarming. To allow the sun to strike upon a hive in the summer is most injurious in many ways.

I have not for several years worked sections, as I have not the necessary time, but have given my attention to perfecting the most simple and practical plan for those who are from home during the day to obtain the best possible results in run honey. As to selling honey I cannot say anything, as I give mine away, or let it be sold at bazaars for charities, and my only object in keeping half-a-dozen hives is the pleasure I derive from studying the habits of insects, especially bees, and my desire to induce the working classes and farmers to make some use of the hundreds of tons of honey that are yearly wasted for want of bees to collect it. I have had to do with bees for about thirty years, and have, I think, read every book upon apiculture printed in the English language, and the more I study the question the more I feel that we do not get anything like the best results obtainable from our bees. I do not at all despair of ultimately getting 200 lbs. of run honey per stock taking the average of seasons, though we have no heather to give us a second crop of honey-yielding flowers, but we must be as careful to breed our queens from the best parents as florists or farmers are to raise their plants or cattle from the best obtainable strain. Until one has studied this point one can have no idea of the enormous difference in the quantity of surplus honey obtained from a stock, the bees of which are the children of a really first-rate young queen and one in which the queen is only of average quality.—J. H. Rogers, *Glyncoed, Llanelly.*

RE FOUL BROOD AGAIN.

[1304.] I suppose I must reply to the 'Man of Kent,' as he may consider me discourteous. He says I have made a very great mistake in supposing Mr. Simmins condescended to act on my advice, because he cannot find one word in his communication in which he says he has had any practical experience of foul brood during the last twelve months, and indeed it is proved on the evidence of Mr. Hollier that he has not experienced it during the last five years. When, then, did Mr. Simmins use the Cheshire remedy? It was given to the world *three* years ago. He must have paid me even a greater compliment, and accepted my *ipse dixit* without any other proof than is contained in Mr. Cheshire's original observations, and written an article giving emphatic approval and confirmation of my advice without any trial whatever; and this, from such a 'shrewd man,' is beyond all expectation. But why should the 'Man of Kent' refuse to buy queens of any breeder of queens who had been known to have foul brood? Does he not in the same letter tell us that it is not a disease of the matured bee, but only of the grubs? And 'if the queen gets the disease, how is it that it does not kill her?' I should have thought he would have been anxious to prove the consistency of his arguments, and rushed off to Rottingdean and said, 'I understand, Mr. Simmins, you have experienced foul brood; I want some of your queens to show how lightly I value the popular error. Please ensure them coming from badly diseased stocks, for I wish to prove it is only a disease of the grubs after all.' This would have been noble conduct on his part, *it would also have proved how to tell a diseased queen,* and have given Mr. Simmins the opportunity of expressing his regret at being unable to comply with his request, and advising him to send off to 'friend Ward' for the needful queens, who doubtless had them, although he said he had stamped out the disease. But like the boy who wrote up 'No Popery! he runs away from Mr. Simmins on the bare suspicion of foul brood, because he sells queens, and yet he does not believe the disease affects queens at all. It is useless to argue with a man who disbelieves everything except that the disease is caused through the use of bar-frame hives, and that it can be cured by simply taking away the combs.

I do not submit a proposition for argument, but I state a fact, and opinions are worthless in presence of fact. What I say now ought to have been said by Mr. Cheshire three years ago, just as it is said by Mr. Simmins. I go further, and say that with our present knowledge of the disease, so long as only one diseased queen exists in an apiary, or in a locality, the disease cannot be kept down. I do not say an attack of the disease cannot be cured without removing the queen, or by other means than the Cheshire remedy, but I do say when all other means have failed this will succeed. I believe it is the missing link in the chain of evidence against the fearful criminal, and it will take the 'Man of Kent' (or any other man) all his time to upset it.

Here are full directions for curing a diseased stock which has defied all other means, viz., a stock with a diseased queen:—

1st. Take out all the combs and wash the hive with medicated syrup of the Cheshire standard, taking care to wet every part of the inside; then return the combs, limiting them to the number which the bees will cover. 2nd. Next day spray the combs *well* with the syrup, shaking the bees off each comb for this purpose. A good drenching is desirable. Do not spare the unsealed brood, but do the work thoroughly, keeping the syrup off the bees. Return the combs as they are thus treated, and cover up, not too close. 3rd. Next day remove the queen (and send her to Mr. Cheshire), introducing a healthy one the same evening, and next morning put on the bottle of syrup, feeding briskly at first. After five or six days examine the combs closely, and where the grubs have a slightly yellow and sickly appearance, force them out with a syringe charged with the syrup. A good one for this purpose is made of an indiarubber ball and about two inches of a tobacco-pipe for a nozzle. Place the end of the pipe to the cell and squeeze vigorously. This should be repeated at intervals of a few days until the cure is completed.

I also recommend placing a bottle of syrup on every healthy hive in the apiary during the above operations as a preventative of infection. Of course it is understood that all syrup used is of the Cheshire standard.

According to my own knowledge and experience this will '*never fail*,' and I regret to say my experience of foul brood has been very long and extensive.—Thos. F. Ward, *Church House, Highgate, 3rd October.*

P.S.—I should not think of attempting the cure of any diseased stock between September and March.

FOUL BROOD, &c.

[1305.] I am only a new subscriber to your *Journal*, but I have learnt a lot by reading it in a little time, especially about foul brood; I never heard of it before taking your *Journal*. I was rather surprised when I read the last paragraph in the 'Man of Kent's' letter last week,—that the fell disease is travelling in the wake of the bar-frame hive, and it set me thinking if I was doing a wise trick in casting away my skeps and taking to the bar-frames. I should like him to explain the why and the wherefore. Does he think it is because there is too much draught in the bar-frame? because, if so, nothing would be more easy than to make a bar-frame as free from draught as a straw skep. He cannot think they are too close, as no frame-hive could be closer than an old skep with the top bunged up and the side propolised fast to the floor-board. Come, friend, 'Man

of Kent,' to use your own words, I think you are on the wrong track this time; we shall have to look somewhere else for the cause of foul brood. My grandfather kept bees in wood hives, 'not bar-frames,' and he died without ever dreaming of foul brood. I should think the disease has been imported into this country, not in bar-frame hives, but in or on queens and their attendants.

It would be a good thing if 'Man of Kent' would try and get the man with the diseased stocks to destroy them, and not help to spread the disease by perhaps selling them to a new beginner, and very likely they may go into a district at present clear of disease; it would not be a very nice thing to do. I have heard it said that a Yorkshireman would sell his stepmother if he could make sixpence out of her, but I never heard of one who had foul brood and tried to sell it to some one else.

I should like to ask your numerous readers if they have ever known of a wasp's nest being attacked with foul brood. I took one this year that certainly contained rotten brood. I wanted the larvæ for my birds, so I put on my veil and dug it out. The wasps seemed to be very listless, and there was scarce a grub in the nest that was not rotten, and the smell was fearful, so I put the whole lot back and filled up the hole with soil. Could *bacillus minor* be the cause of this?—YORKSHIREMAN.

TAKING AWAY DISEASED QUEEN.—FOUL BROOD.

[1306.] In reply to Mr. Ward's query as to where he can find the statement of Mr. Cheshire's, to the effect that a queen must be removed if infected with *Bacillus alvei* ere a cure can be effected, I would refer him to *Bees and Bee-keeping*, volume 2, page 567, line 11, which reads, 'Where the queen is diseased probably no treatment will be efficacious until she has been replaced.—J. T. HARVEYSON, *Finchley, October 5.*

THE SECRETION OF NECTAR.

[1307.] The secretion of nectar by flowers is a subject of considerable importance and interest to bee-keepers, and also to botanists; but whilst the former concentrates his interest on its production from a financial point, the latter restricts his interest on scientific grounds. The chemist also has something to say with respect to its composition, hs tells us that it is starch converted into a variety of sugar, flavoured with the aroma peculiar to the species of flower from which it is gathered.

This conversion of starch into sugar or nectar cannot be manufactured artificially by the chemist, as he is unable to impart the all-important quality aroma. This alone can be accomplished by Nature in her own grand laboratory. The domain of Botany has charge of the organs that produce this sugary liquid; therefore, if we appeal to any student in this department of science he will gladly show us the secreting glands, which are situated at the base of the petals or on the disk of flowers; he will further tell us, if we are so inquisitive, that Nature's object in placing them so low down at the further part of the flower is to compel her winged agents of cross-fertilisation to more effectually perform their important mission.

If the nectar-secreting glands were placed on the outside of flowers instead of the inside, cross-fertilisation, which is so important, in fact necessary, would be reduced to a minimum. The varied methods—how Nature employs her insect agents, how special flowers can only be fertilised by special insects, how the different parts of a flower occupy different positions, according to maturity or age of any individual flowers—is a vast and extensive field of inquiry.

While our bees are thus gathering us the sweets of the earth, they are, with the same effort, unknown to them, —and, indeed, unknown to thousands of ourselves — accomplishing another work, the importance of which we could more fully appreciate if one could possess St. Patrick's magic-wand, and banish the little innocents from the land.

The bee-keeper, however, is most concerned about the production of nectar, rather than the benefits his bees do to the fruit and seed grower and to Nature. It is essentially an £ *s. d.* question, or, at least, a good surplus per hive with him; he knows the exact time, within a few days, when the queen of all honey-secreting flowers (white clover) commences to bloom and to elaborate material for his supers, and he has all in readiness for the few weeks' 'honey-flow,' viz., colonies of gigantic strength, and supers waiting to be filled. Still, it sometimes happens that even hives at this boiling point fail to obtain more than they are able to live upon from day to day. Many bee-keepers, too, are at a loss to know the reason why certain high-class bee flowers fail to secrete honey with them. Climate, soil, altitude, individually or combined, are the great factors in determining the secretion of honey without the requisite degree of moisture, and the chemical food required by any particular plant, —the sun might give us his warmth and light for ever without producing the all-important nectar. I may venture to assert that one day's rain in early June of the present year would have increased the general honey-yield in England at least fifty per cent. We had most brilliant sunshine and warm, balmy nights, but no rain, consequently honey-yielding plants were prematurely ripened, and, in many instances, the flowers were scorched before they had time to open their buds.

In a subsequent paper I hope to give the merits of a few plants that have been under my observation, with a view of testing their honey values.—HY. DOBBIE, *Thickthorn, Norwich, Oct. 7.*

ONE HUNDRED POUNDS PER HIVE.

[1308.] May I venture to give my small experience in support of Mr. Rogers' 100-lb. theory? In 1886 I bought a swarm, sometime about middle of June, and put them into a hive containing fourteen frames. When full I put on two section-boxes; the result was I took about sixty lbs. of honey during the season. This year the same hive, with the aid of a doubling-box same size as the body of the hive and without section-boxes, has produced certainly not less than 100 lbs., and I do not think I should be wrong to say 112 lbs. It is now the best hive in my apiary (numbering six), having abundance of bees and stores left for wintering. I can say positively that there is only one queen, as there has never been a queen-cell made in the hive. I have also a driven lot put into hive September 1886 which has produced sixty lbs. this season. I am only a bee-keeper of two years' standing, so do not consider myself an authority, but should be inclined to say that seventy-five per cent of the hives made are too small.—R. SUTTON, *Ruddington, Nottingham, October 7.*

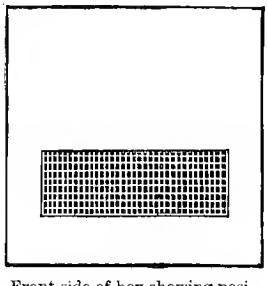
HONEY BY THE HUNDREDWEIGHT (1300).

[1309.] Your correspondent 'Sherborne, Dorset,' is evidently not yet quite ready to believe if it is possible to get the above weight of honey from an ordinary stock of bees in an ordinary hive. With your permission I will give my results this season. I should perhaps say, first, this is only my third year as a bee-keeper, therefore I am yet but a novice. I commenced the season with seven stooks in fairly good condition and from which I have had three swarms. As I live nearly a mile from my apiary I tried to prevent swarming as much as possible, and therefore worked on the tiering principle. Most of my hives hold twelve standard frames in the

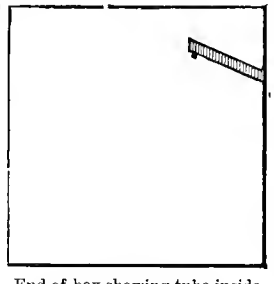
body. These I never disturb during a honey flow, and above I worked two and in some cases three crates of sections. On the 13th August I had taken 523 lbs. of extracted and comb honey from my seven stocks, and I then took them to the moors, and since they came back have taken over 100 lbs. more from them, leaving each hive not less than thirty lbs. to winter on. Although this is not an average of one cwt. per hive, it will, I think, be conceded a fair average, especially when the distance I am away from the bees is taken into account. I have not the slightest doubt that a competent bee-keeper residing in this locality could in an ordinary season count upon and get 100 lbs. per hive with as much confidence as 'J. H. Rogers.' I may add that from my best hive (Ligurians) I have taken 118 lbs. —C. A.

AN IRISH WASP-TRAP.

[1310.] Take an ordinary box with lid (which screw down), cut a piece (say, eight inches long by three inches wide) out of the front side, cover this opening with wire gauze or glass (wire gauze is best, as it allows smell to attract wasps); now make a hole in one end, three-quarters of an inch in diameter, and insert a tube, made either of wire gauze or perforated zinc, about six inches long. The hole should be about six inches from underside of lid, so as to allow the tube to incline upwards, drive a nail under upper end of tube to prevent



Front side of box showing position of window, covered with wire gauze on inside.



End of box showing tube inside resting on nail.

it falling down. This trap has been most successful with me when bottles were not noticed. Insert any extracted comb or pieces of comb inside box as a bait. Strange to say, I have not had one single bee enter, although my trap stands in front of hives, and is at time of writing stocked with at least a 7-lb. swarm (?) of wasps, which I would gladly exchange with our friend who is fond of them for some of his bees, to replace two hives of mine killed out by the 'yellow demons.' The same box, if made large enough, will answer well for clearing supers by pushing tube outside. 'Waspie' can surely get all he wants with a few of these, for which no patent right is asked.—Co. Wexford.

CURE OF FOUL BROOD.

[1311.] I can most fully sympathise with bee-keepers who are troubled with foul brood, and should rejoice to hear that it was completely eradicated in every apiary in the country. Some years ago I was troubled with it in my apiary, and only succeeded in curing it by destroying all my hives, section-cases, &c., and isolating the bees. Last year it appeared again, and I determined to try another plan, and I am happy to say that I think it has been completely successful. The disease appeared in two hives in June, the very height of the honey season, when section-cases were on, and the bees seemed full of activity. Most vexing! What was to be done? First of all, I placed a lump of camphor in each hive, both infected and non-infected. This I have renewed ever since, and imagine that it has prevented the spread of the disease, for it has not spread beyond those two hives. Then I tried fumigation with thyme, but it appeared to have no effect whatever. I then tried fumigation with salicylic acid, fumigating the hives thoroughly about every third evening. This seemed to check the disease, and to cure it so far as the slightly affected and open cells were concerned, but to leave untouched the very bad and closed ones. I then removed some of the worst frames—they were very bad—and opening all the suspicious cells of the other frames, poured into them and around them a liberal supply of syrup medicated with Cheshire's cure. I did this a second time after about a week's interval, continuing also the fumigation with salicylic acid, and soon had the satisfaction of seeing that all trace of the disease had completely disappeared. Early this spring I changed the hives, using the previously infected ones after simply painting them twice with salicylic acid, but boiling the section crates, &c. used on those hives with strong carbolic acid. No sign of the disease has appeared all this year, although it has existed all the time in the immediate neighbourhood, and on a recent examination of every frame in my hives I could not see the slightest trace of it. I may mention that I dethroned one of the queens, but left the other, and the result was that the colony presided over by the new queen was so feeble in the spring that I was obliged to unite it to another, but the one with the old queen was so strong that it gave me one of the largest swarms that I have seen. I should be glad to hear whether any other bee-keepers have tried the same plan—viz., Cheshire's cure, salicylic acid, fumigation, and camphor combined, and whether it has been equally successful with them. The disease is so vexing, disappointing, and disastrous, that any remedy seems worth a thorough trial.

Heddon's hive has not succeeded well with me so far. I could not induce the bees to go up through the zinc excluder when I separated the brood-nest, except to hatch out the brood in the upper half. Perhaps in a better season they might have been more obliging, but as the drought came on they got into a bad humour.

Grimshaw's Apifuge I have found most useful. It has enabled me to discard gloves, and to handle the bees much more comfortably.—Sussex Rector.

THE PLATELAYER'S REPORT.

[1312.] Just a line to tell of my success this season. In spring I commenced with fourteen stocks. Made an artificial swarm of the whole of the flying bees of one stock, and placed brood-combs in an upper storey on top of another strong colony. At one time this lot was made up of four storeys altogether—forty-two frames; but, unfortunately, the queen would persist in laying eggs in the four centre combs throughout the whole pile, by that means causing a vast amount of labour in securing the harvest.

Now for results. My best hive was the Stewarton, from which I secured 60 lbs.; my worst, thirty-six 1-lb. sections,—altogether from the thirteen colonies 580 lbs., viz., 250 sections, 270 extracted, and the 60 lbs. from the Stewarton before mentioned. My increase in stocks is one natural swarm, which was returned to the old hive after having removed all the brood-combs save two. The removed combs, nine in number, were split up into three nuclei; the queens hatched, and became fertilised in due course, and are now amongst the best stocks I have. It has been my good fortune to escape foul brood so far. Until this autumn I had never seen it, now it is within a half-dozen miles of me, introduced into the neighbourhood by the beautiful Italians (not frame-hives, perhaps 'Man of Kent' will please note). I could give another instance of the dire disease being given—I was going to say, perhaps sold would be better —with a straw skep of the interesting foreigners.

Viewing the above facts, I do not feel disposed to change my stock, like a recent correspondent. After handling a great many stocks of bees, I do not think the English bee is easily beaten. I know many advanced bee-keepers advocate Eastern races, but much is in management. To cite a case in point: An enthusiastic bee-keeper, perhaps the owner of twenty stocks, is fired with the ambition to outdo his bee-keeping neighbours. He sends off for a queen of one of the fancy races. In due course she arrives, and is introduced to the best stock which he possesses. Every attention must be paid to this particular hive, and often the remaining nineteen are wholly or partially neglected. At the end of the season the happy owner is loud in praise of the new variety; and no wonder, seeing one guinea was paid for the queen, and gold must be looked after. Season No. 2 comes round, the thing is old now, and if you ask then how about your fancy races, where are your Syrians, Cyprians, Carniolans, &c.? echo answers, Where are they? At least, when I have asked such a question that has been the experience of—PLATELAYER, *Ruckinge, Ashford, Kent, September 30th.*

SEAM OF BEES.

[1313.] There is an expression used in last week's *B. B. J.* by 'John Bull' (1249) which sounds very unfamiliar in connexion with bees. He says, 'I lost two *seams* of bees.' Is it already a technically common word, or is it an adaptation of 'John Bull's' own? I should never have guessed its meaning had I not by chance seen the Italian word so closely resembling it when abroad this summer. It was in a high Swiss valley, whither an Italian bee-keeper had sent up his pile of box-hives for the in-gathering of the honey-harvest. On every one of these boxes was the word *seme*, followed by a number, or date, or state and age of queen. This Italian word means a seed, race, or progeny, and would surely answer to our word *stock*. This, therefore, is only a case of resemblance of words and not of derivation, I know, because *seam* meaning weight or measure, according to Webster, has its Italian parallel in *salma* or *soma*, and all are derived from the Greek σαγμα.

It may interest many of your readers to hear that this new art of bee-keeping is being steadily fostered and developed by Italians just over the borders of Switzerland, and genuine honey can be confidently expected to oust the glucose mixture in a few years.—F. H., *Kent*.

[The meaning of the word 'seam' as used by 'John Bull' is the cluster between two frames.—ED.]

Echoes from the Hives.

Keswick, Cumberland, Oct. 8.—After our long and beautiful summer we are having a splendid autumn, up till this morning when all the mountains were covered with snow almost to the bottom; I do not remember such a heavy fall so early before. Up to the middle of the past week bees have been doing a little, almost daily gathering some pollen and working on borage, of which I have still a splendid crop in full bloom. Bees in this neighbourhood have done exceedingly well the past season by those that have adopted the bar-frame system, but with the old system many of them have only had a very moderate time of it. Through their bees being so late in swarming they did not get their hives furnished with combs before they were prevented from doing further work through the drought; but with those that are working their bees on the modern principle, where they were properly managed in the early part of the season, they were ready to do business at the first opportunity; that was when fruit and other trees came into bloom. Betwixt them and clover no time was lost. On the eve of our great Jubilee Day I took for the first time over twenty pounds of section honey; this is very early for this district. After that I took more or less almost daily till the drought put a stop to further labour. All then came to a standstill for at least three weeks. In some hives breeding was almost stopped owing to the food supply being closed. Heather came into bloom before July was out; I was then able to reap a second harvest of over one hundred pounds, besides a number of unfinished sections. The weather broke long before the heather was exhausted. I might have done much better if I had taken my bees to the heather. As it is they have to make a flight of close on two miles. These long flights I find are very injurious to the bees, as they diminish in numbers daily, so much so, at the close of the season there are far too few to go into winter quarters.—R. PHILIPSON.

Stocket, Aberdeen, Oct. 7.—The season has been, although short, very good. The flow commenced in the early part of June and ended on 2nd July. My highest record is 74 lbs. extracted, and next 68 lbs. principally sections. My average is 45 lbs. per stock. Honey has been very cheap this year. For extracted I have got 6*d.* and 7*d.* per lb., and for sections 7*d.* and 8*d.* Extracted honey demands the readier sale, and with so little difference in price is more profitable than sections. The honey is not of such good quality as last year, as the flow began earlier, so that the clover was mixed with sycamore and fruit blossom.—A. CADENHEAD.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

S. WHITE.—*Granulated Honey.*—The reason of your honey becoming candied was extracting it before it was ripe. It is always best to extract none but *sealed* combs, unless it is ripened artificially, and even then the honey loses its aroma and fine flavour. A low temperature will cause any honey to congeal, and there is positively no difference in the tendency to granulation between skep honey and that in frame-hives, whether it be taken by murderous brimstone or by the extractor, so we hope you will not return to the murder system.

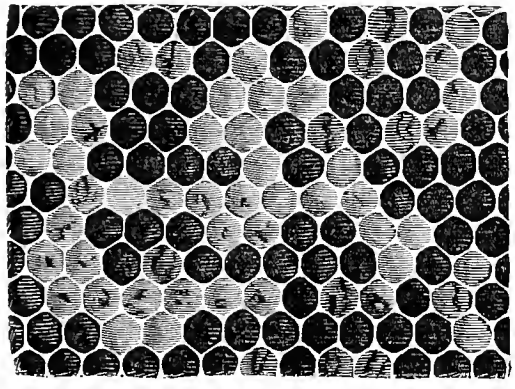
H. G. STURGES.—*Foreign Bees.*—Scattered throughout the pages of past volumes of the *B. B. J.* will be found the fullest information respecting the foreign races of bees which have been introduced into this country, but there is no work or pamphlet which treats entirely on this subject. Mr. Blow's pamphlet, entitled *Among the Queen Raisers*, may give you some information. The races most cultivated here are Italians, Cyprians, Syrians, and Carniolans; but the opinions as to their merits differ widely, even amongst the most practical and skilled apiarists. The palm, however, is generally awarded to the Italians for 'all-round' qualities. The Cyprians are very prolific and excellent workers, and the Carniolans have come very much into favour of late.

G. G.—*Heating Honey.*—Submitting honey to a temperature of 150° or 200° Fahr. will generally prevent subsequent granulation, but it destroys the rich natural flavour and aroma of the honey. When honey has granulated in the comb the application of heat is the only way to liquefy it. We do not think there would be a large sale in this country for Professor Cook's heating apparatus.

H. R.—*Ventilation.*—During the two previous winters the use of enamelled cloth over the frames has been well tested, and in the spring when the hives so treated were examined the bees were found perfectly healthy, and the hives free from damp or mould. Upward ventilation, though advised by many apiarists, appears to be in opposition to the instinct of the bee, seeing the use of propolis prevents it. In using the enamelled cloth, the summer entrances are left open the full width.

S. J. STEVENS.—*Foul Brood.*—This disease is caused by a bacillus, to which has been given the name of *Bacillus alvei*. It is not only a disease of the brood, but of the mature bees, and sometimes of the queen. When the cells are examined they will be found indented and pierced, and containing a putrid, sticky, coffee-coloured substance, which sends forth a most disagreeable smell,

which may be perceived at some distance from the hive. The disease is most infectious, and it is the worst the bee-keeper has to contend against. It requires all the bee-keeper's attention to eradicate it and prevent its future appearance. Many bee-keepers stamp it out by the destruction of hives, frames, bees, &c., infected. For the various proposed modes of curing foul brood, refer to Cowan's *Guide Book*, pp. 138, 139. We insert a wood-engraving, which may assist you in recognising it:



H. C.—The comb is decidedly affected with foul brood—*bacillus alvei*. If the queens are from the diseased stock I should be greatly obliged by them, but they would be of service in any case.—F. C.

W. M.—The queen, much dried and somewhat crushed, is not in favourable condition for determining the points asked, but clearly she is young, and apparently a 'black.'—F. C.

A. J. B.—*Bacillus alvei* of the usual type.—F. C.

J. Davies, *Pwllheli.—Feeding.*—Put thick thatch on the roof, see that it is fastened securely. Try the syrup as suggested, but put small sticks on the muslin as an additional safeguard. It would be advisable to give them a cake of candy in any convenient vessel. For the other thirteen try syrup as long as the weather remains open. Pack them close and warm. The less cold they have to combat against, the less food they require. Put one or two cakes of candy under the quilt; it was recently described in this *Journal*. If they are short of stores, replenish candy at the earliest period the weather will allow of. Give flour-candy in the spring to encourage early breeding.

Excelsior.—If we inserted your letter in the *Journal* we should have preferred seeing your signature attached to it, and not a *nom de plume*. We consider the old Lincolnshire Bee-keepers' Association to be defunct, and we should rejoice with you to see a flourishing Association in a county where 'honey can be stored by the cwt.' As to the matter of personal pecuniary responsibility this should be settled by those locally interested in it.

Ignoramus.—*Feeding.*—See reply to J. Davies.

Subscriber.—The piece of comb forwarded is badly affected with foul brood. Refer to the communications of 'T. F. Ward' and 'Sussex Rector' in this issue.

A Constant Reader.—There ought to be from twenty to twenty-five pounds of food to last the bees until the return of spring.—The feeding should be discontinued as early as possible.—The arrangement suggested for the position of frames during winter can be adopted.

Business Directory.

HIVES AND OTHER APPLIANCES.

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HONEY GLASS MERCHANTS.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
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THE BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, Cambridge Circus, W.C.

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Editorial, Notices, &c.

THE FLAVOURS OF HONEY.

We are frequently asked to say what plant honey has been gathered from which bears some peculiar pronounced flavour, sometimes agreeable, sometimes the reverse; at times so intensely sweet as almost to be objectionable, or so bitter as to be compared to marmalade made from Seville oranges.

Sometimes this is no light task when we remember how easily in chemistry, by almost infinitesimal additions, the taste, smell, and other distinguishing characteristics of various substances, may be totally altered. Simple degrees of intensity even will do this. Nearly every disagreeable odour if sufficiently attennated or diluted is thus rendered agreeable, or at least its objectionableness is removed; and, per contra, if we concentrate or condense almost any delightful odour we have, it is at once robbed of its charm and produces in all probability only a feeling of disgust. Poisons diluted become our most valuable medicines, and our concentrated plant essences become most virulent deadly poisons.

These arguments apply equally to odour and flavour, taste and smell. We know some of the most bewitching perfumes to us are an abomination to some other animals, and that they are attracted by the (to them) delicious exhalations from what is (to us) only abominable carrion.

We cannot, somehow, divest our minds of the fact that taste and odour are as one, for it is rare indeed to find them part company. In nine cases out of ten, what a substance tastes of it smells of, and *vice versâ*. Besides, the organs of taste and smell if not precisely (as we believe them) one and the same, are so similar and sympathetic that if one be disordered the other is also: in cases of catarrh the taste and smell sense is inactive and do not return until the trouble shows signs of passing away.

The dictum that we possess the five senses distinct as such, must now be taken *cum grano*.

The chemistry that is worked out in the dark little laboratory of the bee is even now nearly a hidden science in spite of the rapid strides made in recent years by our analysts in deciding what are the various changes undergone by its saccharine contents from the time it is gathered as nectar from the flower, to its crystallisation beneath the capping of the ripened store. Cane sugar converted into grape sugar; nectar into glucose; dextrose *v.* levulose; these do not touch in any way the most important point of all, that quality which gives to honey its characteristic charm and enables us to distinguish the honey-jar from the treacle-pot, which makes our honey a wholesome, toothsome delicacy of direct service as a medicine as well as a food (not unlike tomatoes amongst esculents); in effect, the only quality which gives it the stamp as 'food for the gods.' Honey ceases to be such when its flavour is gone. Take oxygen from the atmosphere, and, to our mind, you symbolise the gap made in honey by robbing it of flavour. Nectar is scented by the chemistry of the plant-cell, and this distinctive aroma is preserved by the chemistry of the bee in the honey-cell. We thus obtain large quantities of honey having an unmistakable sign of its origin in its flavour, its taste and smell; but only is this the case where flowers bloom in such preponderating profusion of one single species, as are instanced by the clover of June and July, or the heather of August and September.

In the earlier and later seasons there is a gathering from 'all the flowers,' and then our honey has simply that peculiar 'twang' (on the palate, we erroneously say) which brands it as honey and not syrup.

If we, with our coarse methods, could but have twenty or thirty thousand messengers, each one bringing in the usual bee-load (one-third of a drop), each load being gathered, as bees do gather, from one kind of flower only, for ripening, keeping, and other chemical reasons—other insects, which do not lay by stores for winter, are not so particular—and, it may be, perhaps from a dozen different kinds of flowers by the bees of the same stock, we should get the common and usual flavour of honey, *i.e.* the mixed perfumes of flora.

If chemistry did not appear to us ignorant mortals as a fickle, inconstant science, full of surprises where constancy and regularity are expected, the perfumer could provide us with the '*triple extrait*' of honey quite easily were that 'a consummation devoutly to be wished,' though those who used such scent would perhaps have more attention paid them than agreeable, by our bees, especially when in country residence.

Now, let one class of flower in bloom even

slightly predominate in the neighbourhood of an apiary, and the basis flavour is at once so altered that the honey acquires a taste in which even the predominating component cannot be recognised by our comparatively coarse faculties, and it is only as this particular component becomes proportionately excessive that the flavour and source of the honey can be recognised.

If half-filled sections of clover honey be filled up at the heather, we obtain a honey quite distinct and superior to that of either of the components. When cells filled with clover, and others with hawthorn, are extracted (for we believe there is yet a distinction kept, *i.e.*, it is not stored promiscuously), the mixture gives us quite a new sensation. And so it is through all the many changes and combinations which may be rung on our flower-bells *ad infinitum*, quite new and marvellous taste-puzzles are elaborated. Let any strong permeating perfume be introduced, such as peppermint or thyme, and even the all-discriminating bee would be puzzled to tell the origin of the honey, *let alone the palate of the honey-editor*. Let us remember, first, that the smell of a flower is the taste of the nectar and of the honey in nearly every case, and that there is as stringent and accurate a law in the effects produced by mixing these as in the mixing of oxygen and carbon into a poisonous gas, oxygen and hydrogen into water, or oxygen and nitrogen into air. Harmonious combinations are made by the musician according to well-known laws; they are made by the artist by similar rules, and the perfumer still, according to the same theory, blends primary bases into secondary and tertiary compounds, which are totally distinct from their separate component parts, these being unrecognisable. So with our honey and bees. It may be that as we now have bee-gardens kept distinct for the raising of separate varieties of bees, we may in time, by judicious selection and cross-breeding, arrive at a bee of all-round excellence, an early-and-late working race, a good breeder and winterer, having little disposition to sting. We may have fields planted with bee-flowers, coming successively into bloom (with the accuracy of the floral clock which enabled our botanical forefathers to tell the hour of the day), from which we may obtain honey of distinctive *prononcé* flavour, and blend these at our pleasure.

A VISIT ON BEE BUSINESS IN MID WALES.

An invitation from the leading bee-keepers in the districts of Caersws, Glanyrajon, Glanclywedog, Llanidloes, and Tref Eglwys, in Montgomeryshire, gave me an opportunity to see for myself how bees and beemen pursued their business in Wales. I left Holme Apiary on Monday, August 22nd, *en route* for Llanidloes, *viâ* Rugby, Lichfield, and Shrewsbury. From the latter place our speed of travel slackened. Slowly as we travelled, even so the shadow of night was falling; and it was but the outline of hill-tops, gleams of lamplight from elevated houses, with now and then the bark of the shepherd dog, which told us we were in the midst of Welsh homes, hills, and scenery. Our changing place for Llanidloes was Moat Lane End Junction; but my Welsh companions, when queried as to changing place, conveyed the intelligence to me,—'You change at Mortal End, sir!' 'I judge we do!' was my remark; 'but to near the "mortal end" so well and strong, amid such company, and the prospect of continuing one's journey with bees to boot, is what I had never hoped for.' This caused some merriment, and made a north-country fellow-passenger feel he knew me a bit; and didn't we begin bees in earnest? When Moat Lane was reached, then in all probability the Mortal End of our bee-chat ended, as he changed for one direction and I for another.

At Llanidloes I was soon under the hospitable shelter of friend Roberts's roof-tree, and after a frugal meal I took me to rest. 'Up with the lark in the morning,' and I had a chance from my elevated bedroom to look out into the street below and from thence to the hill-sides; but here I felt my vision sadly imprisoned, insomuch that I sat me down and wrote to the 'best queen' in Holme of my safe arrival, and said that I felt in a great big hole, with but a few houses and people to keep me company. Breakfasting, I was serenaded, first with vocal, and then with instrumental music by wandering minstrels. The vocal from two male persons, whose voices, like their stature, were of great capacity, and from the hollow sounds there appeared but little inside either. My heart was good to give the men a meal, if only to get a little better music; but the time had arrived for my departure, by pony trap, to Tref Eglwys. The road thither took us over a hill-top ere we gained much distance on our journey. When on the summit it struck me, 'Aren't these Welsh bees mountaineers indeed?' and when I saw their products on the show tables of Caersws and Llanidloes, and again in the apiary of Mr. Nicholas Bennett, of Glanyrafon (here handling the natives), I was convinced that for vigour and fit and finish of work, the black bee of Wales can hold its own against all comers. As, too, the bees in this apiary have a history of two centuries, as also have others I know of, how much does it speak for crossing and interchanging blood by art in bees when natural laws have handed down in these districts Dame Nature's faultless work?

But here I must stay, or I shall find myself on the hill-top of controversy, and forget Llanidloes hills. Here the pines gave a fragrance to the morning air, and the remembrance of the puny hills of Huntingdonshire provoked a strange contrast with the vision before me.

Arriving at Tref Eglwys, our friend Mr. T. Bonner Chambers was out to meet and give a hearty welcome. Having refreshed the inner man we drove to see bee friends at Caersws, and give a look at the apiaries of Messrs. Francis and Evans. Here, in both, the sad mistake of bar-frames crossing hive entrances was apparent.

Caersws (once the site of castles) lies in as fine and fertile a valley as ever Welsh hills could surround. Here the bee can roam and find a meal, and man can roam also until he wants one. Does he choose he can fill his mind with knowledge, inspecting earthworks and trench-excavations, wrought by Roman warriors, now in the sleep of death, maybe beneath one's very feet. Night found us back to Tref Eglwys, and early next morning we were on our way to Llanidloes show. Here our bee tent (an ordinary one) was pitched for the company, and the bee-man and his charge had but the canopy of heaven for a covering, his inside audience seeing how things were going on through the partly-netted outside walls of the tent. I say inside audience, for no sooner had bee-driving commenced than many boys were crowding around, evidently feeling that the nearer the beeman the more secure they would be. Didn't I feel grateful that in the shape of large, heavy boots I was bearing more leather than necessary without that of the boys; still these boys gave strong hope of many a Welsh bee-master, and best proof of the genuineness of our pro-

ceedings, for the suspicious look which many an elder betrayed as to 'doctoring' and 'mystic' salve was dispelled when the bees on wing paid each and all outside a friendly visit. It was amusing to see the lads look at me ere they ventured to give the bee his 'removal order' from the tip of their ear, nose, or chin, evidently feeling that the finger of removal was more in danger than the part the bee was parading. Gradually the timidity of men folk,—aye, and of women too, was broken, and the hot tent soon emptying, friends Humphreys and Jones were manipulating and your humble servant talking bees (not spelling bees this time) to a host of persons in the very same tent where *Noah caught the bee he introduced to his specimen house of all creation.*

The honey exhibited, as before noted, was of a very high class, the sections of Mr. T. B. Chambers especially so. The run honeys were extremely good, and deserving of particular notice were those of Miss Amy Roberts and of Messrs. Humphreys and Jones. This latter reminds me of the good old Welsh name and its many bearers, and how from using it I felt I was about to be lawlessly mobbed! Wanting help with a hive I sang out to the last-named gentleman, 'Mr. Jones, please give me a lift!' A stirring of the air caused me to look up from my stooping posture, and, behold! some fourteen or fifteen able-bodied men were confronting me. 'Sure, men, and what is it troubles you?' I greeted them; when my apprehensions were relieved by one Mr. Jones Evans saying: 'All right, Mr. Howard, you have all the Joneses of these hill-sides to pick from!' There being little to choose, I took the first Jones to hand, and, fulfilling my request, returned to the *fold*, and I heartily thanked them all for their prompt attention. The day passed off in goodwill and general happiness, the competing choirs and all were tuneful, save, perhaps, a slide trombone in the brass band. This operator evidently must have plugged his ears for the occasion, or his head would have felt as mine did, about to receive the last screw-up from the Raitt honey-press. Still do not let me convey the idea that the Welsh are unmusical; far from it. Here, without accompaniment, I heard mixed choirs, and choirs of men voices only, give forth earth's sweetest melodies. At early morn, and nightfall too, it was charming to hear from sons of toil, plaintive as well as joyous, concerted strains, given forth from many a vale.

The Llanidloes show over, our return to Tref Eglwys was uneventful, save from the fact, as Pat would say, 'Down these hills it is impossible to ride in an empty cart.' From this you may gather that in Wales, what with the up-and-down hill, a five-mile drive means a combination of walk and ride. Around Llanidloes, indeed (the highest town in Wales), the former is far preferable. Thursday was spent in visiting many apiaries, all of which were capable of improvement. Still, I prophesy that when the Jones family get well and truly practised in modern apiculture, even our Cheshire veterans may haul down their flag at Colonial and national competitions.

On Friday I attended Caersws show, where everything in horticulture from a tiny cork-bound carrot to the choicest orchid; in 'Canine culture,' from a ten-ounce pet to one of 1½ cwt.; in apiculture, from the queen-bee's egg to the grandest sectional honey, and many a promising beeman was to be seen.

As the brass band here was more attuned, so were my bee thoughts, and as a consequence I felt more satisfied with the lecture which I gave. My remarks were well kept in mind by my audience; I was freely questioned, and I think a lasting impression and good results inevitable. Friends Humphreys and Jones here found me out, and as we took up the skep hives sent for manipulation, some of the contents came out sharp end first apparently, and as friend Jones removed one morsel, which was doing the 'Channel Tunnel' down his shirt-collar, he remarked, 'They have picked them for us to-day, Mr. Howard.' However, the carbolic spray and a feed of syrup soon brought peace to the troubled world, causing one who had not seen the quieting process to ask in what manner bees were trained to this performance. The place of the Observatory hive at this show was the scene near which many a quaint idea of bees was to be heard. For example, said one man, 'Now here be the ones (workers) which blows thems' eggs. This one (the drone) blows his eggs, but the one which blows the queen's eggs my old woman or I has ne'er seen yet.' Again, quietly, and the two alone, one lady remarks to the other, 'Lizzy, if here aint bees spinning honey!' The exhibits were here much a repetition of those at Llanidloes, but, as usual, dissatisfaction was given in the judging to one or more who were the unhappy possessors of beautifully clarified and coloured honey, *but which could not score one point for consistency.* Much credit is due to Messrs. Francis and Jones, of Caersws, for giving their time and services in making the honey and bee departments a grand success.

Tref Eglwys being my centre, we (Mr. and Mrs. Chambers and I) homeward turned, and on Saturday morning we made our way to the apiary of Mr. Nicholas Bennett, J.P., at Glanyrafon. Here the bees have a history which many a house would be proud of. These bees have conserved all their good old ways—aye, and their bad ones too—but (which is rapidly going on) the introduction of them to bar-framed castles may give them more respect for the feelings of others. Heather honey was being freely gathered by these bees, each hill abounding far and near with this valuable late secreting bee-pasture.

At Glanyrafon the day was well and profitably spent, and was crowned with the hospitality ever and anon shown me by all. I am shy at telling the small hours at which we took our departure from our noble host, but suffice it to say we were not prevented attending Church services morning and evening. One service was in my mother tongue; the other in that of Brother Jones. The latter to me was none too edifying, but set me wondering how the parson kept his teeth when uttering such language.

Monday morning brought with it a letter from my 'best queen' calling me homeward, and I had to disregard much persuasion and entreaty to stay yet longer. I shall, however, bear in mind for many a day to come a visit on bee business in Mid Wales.—JOHN HOWARD, *Holme, near Peterborough.*

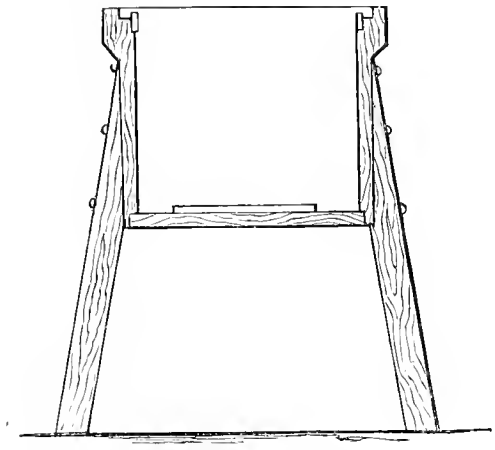
IRISH BEE-KEEPERS' ASSOCIATION.

STANDARD HIVE.

At the meeting of the Committee on the 4th inst. it was resolved that the standard hive of the Irish Bee-keepers' Association should follow the description given below. It was also resolved that any Dublin hive-maker constructing hives on this pattern, and undertaking to do so under the official supervision of members of the Committee, be entitled to style himself Hive-maker to the Irish Bee-keepers' Association. The limitation to Dublin is necessary in order to make the supervision above-mentioned practicable.

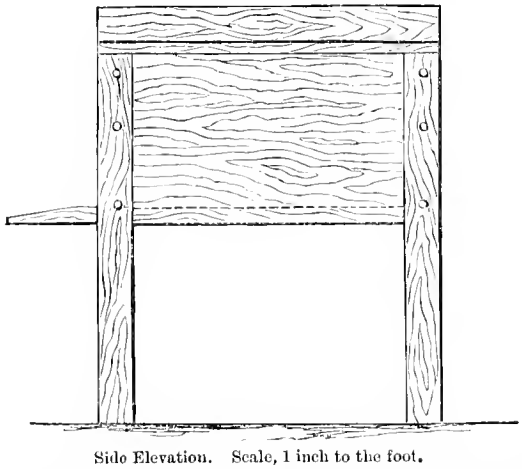
Description of the Standard Hive.—(A large portion of this description had previously been approved and appeared in the *B.B.J.* for July 14.) The length of top-bar to be 16 in. out to out, width $\frac{7}{8}$ in., thickness $\frac{3}{8}$ in., sides $\frac{1}{4} \times \frac{7}{8}$ in., outside measurement of frame $8\frac{1}{2} \times 14$ in. The top-bar of the frame to be what is known as open-ended, with screw-distance keeper 1 in. in length, and $\frac{5}{16}$ in. across the eye, outside measurements, the eye screws to be inserted immediately over side-bars. The runners to be of hard wood, not exceeding $\frac{1}{16}$ in. bearing. The hive to be 22 in. long, $14\frac{1}{2}$ in

wide, and 9½ in. deep from top of frame to floor-board inside. Walls, if single, to be of ¾ in. wood, with a strip of wood at the top to cover the ends of the frames, and 10½ in. deep. If double, these details may be varied where necessary. The floor to be of 1-in. timber, planed



End Section.

on both sides, nailed to rabbet in the sides, and, if joined, to be tongued and grooved. The roof to be sufficiently deep to admit of a second tier of frames being placed over the brood-frames. The hive to be sent out with one layer of canvas, two layers of jute carpeting, and two layers of flannel, or their equivalent, and to be supplied with one close-fitting division-board. The door to be 9 in. wide, and fitted with effective entrance slides.



Side Elevation. Scale, 1 inch to the foot.

Peculiarly-Shaped Cells.—We have now before us about one dozen different specimens of comb that have been cut out. These vary in size from four inches square to half the size of an ordinary comb. In these pieces there are a large number of cells of almost every imaginable shape, some oblong, a few hexagonal, and some V-shaped; some have three sides, the ordinary hexagonal shape, the other three made with two forming a V running off to a sharp point; some are formed somewhat like a V, then others are as perfectly square as the bees could make them, and not a few are triangular; some are five-sided, some are nearly round, some heart-shaped, in fact we could hardly think of a shape that might not be found in some of the pieces. The square cells are in perfect rows two inches in width, and six or more in length, nearly all perfectly square. Most of these different cells had brood in them, and we have not been able to detect any difference between the bees hatched in these peculiar-shaped cells and those hatched in the ordinary ones.—*Canadian Bee Journal.*

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. Huckle, *Kings Langley, Herts (see 2nd page of Advertisements).*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

WHAT CONSTITUTES A GOOD STOCK?

[1314.] One and all are interested in this question, and many will be glad to know what a really genuine colony should be, as well as how to obtain such. Considering that you keep bees solely for the production of honey, it is understood that you desire *only* strong stocks, and also must be aware that to make bees pay, your stocks must *all* be in good condition. In a general way this is obtained, (1), by keeping only young queens; (2), by uniting in the autumn; (3), by supplying any deficiency of stores soon after surplus receptacles are removed; (4), warm covering above the frames at all times; and lastly, thorough ventilation in winter without draught through the brood-nest. Here we have the whole question in a nutshell, but a few remarks upon each subject may be found interesting.

Young Queens.—Many object to the trouble of changing queens, and consider it unnecessary; but their reasoning is influenced by the thought of that little trouble, for, as a matter of fact, stocks can only be kept in generally good condition year after year by the help of young queens. A queen is the life and soul of the hive, and those colonies only do well that are in possession of a queen all the time, but that stock does best which has a young one, as the bees partake of her own energy and do better in consequence. Mr. Cowan and others have long shown the necessity of deposing queens that have worked two seasons, but I prefer to keep them only one year. The best results will always be found with queens raised at the end of July, superseding them in August of the following year. Such queens carry their colonies through winter and build up in spring in a manner that is perfectly astonishing. Young queens do not breed after September unless the manner of feeding is at fault.

Uniting in Autumn.—This is far better than waiting till spring, as little good can then be done with weak colonies still further reduced by the cold of winter. A good queen at the head of a strong colony in autumn will give a stock the following spring worth half-a-dozen weaker lots. Instead of being reduced in number the opening of the new season will find her colony even stronger than before winter; whereas, instead of the apiarist uniting by twos in autumn, if left till spring, some of the weaker lots will have died out, while a larger number will have to be united. It need hardly be stated that young queens should be reserved in preference to those older, and in any case of uniting fighting seldom occurs if the condemned queens are removed the day before the union takes place. In any case all but the one queen should be first removed.

Deficiency of Stores.—When supers are removed very often the bees have little left below. They have plenty of brood, and this is the time to give what more food will be wanted, so that enough more young bees will be produced to compensate for the consequent exhaustion. Do not by any means wait till the bees, finding themselves running short of food, cease breeding, or the wear and tear caused by late storing will be very detrimental.

Warm Covering.—It is most important that the frames be carefully covered with warm material at all times, or the development of the brood-nest will be seriously retarded, and the first batches of brood generally produced from the turn of days, so necessary to give the colony a good start, will be found wanting.

Ventilation in Winter.—This matter is of the first importance, though too frequently omitted. Thorough ventilation can be provided in several ways, but whatever plan may be followed it is imperative that there be plenty of room below the frames, as I have pointed out upon former occasions. For my own part I prefer a deep comb, or, with the standard frame, an empty chamber under the stock hive. A space of $\frac{3}{8}$ in. between the floor-board and bottom rail of the frames is little enough, but a circular hole of 2-in. diameter provided in the centre of the floor-board will be found very beneficial. Failing this, an extra shallow rim can be placed under the hive, or strips of wood may be placed under the frame ends, giving a clear space below that all refuse, dead bees, &c., may fall away from the combs, giving a free passage for bees and fresh air. Where porous covering is preferred above the frames, giving a gradual change of air, the entrance may be small, but with non-porous clothing the flight-hole must be at least six inches wide for very strong colonies, otherwise the excess of moisture cannot be disposed of. Where the form of the hive permits, I have found no better way for giving a thorough change of air than the following: Place all the combs (with bees) at the end furthest from the entrance, with or without a dummy on that side next the vacant space; but if the dummy is used, it must not be tight-fitting, and should hang just as an ordinary frame. Cover the frames with warm material, porous or otherwise, and let there be a clear, open space from the entrance to the roof. Here we have a thorough change of air in front of, but not through, the brood-nest, and not a particle of mildew is ever found upon the combs.

A colony to be really profitable should cover not less than ten frames in August, having had a succession of young bees throughout the season, and, if required, its full compliment of food given before breeding declines, with a young queen from good stock supplied early in the above month. To be on the safe side, the novice cannot do better than put all his colonies in this condition during August, uniting where necessary to gain the required strength. Do not say that you cannot afford to thus reduce your stock; you certainly cannot afford to do otherwise.—Sam. Simmins.

RE FOUL BROOD.

[1315.] I am much obliged to Mr. Harveyson for pointing out the passage in Mr. Cheshire's new book, but as I have not yet seen that book it could hardly be said I had overlooked the fact, and as the whole subject has special reference to what Mr. Cheshire advised three years ago I do not exactly see the force of the remark; still it is gratifying to know Mr. Cheshire at last advises a timely removal of the queen whenever there is reasonable ground for believing her to be infected, which I consider is always the case, and as this was the only cloudy part of his advice in August, 1884, since which time the disease has spread in every direction. I hope the future will not find us looking for more 'reasonable ground' than the very fact of the disease being present supplies, but at once and immediately requeening as a first step to effecting a speedy and certain cure.—Thomas F. Ward, *Church House, Highgate, October* 15.

EXTRACTING FROM BROOD-COMBS.

[1316.] The position taken up by Mr. Boyes, that it is not advisable to extract from combs containing brood, is a perfectly tenable one. He says by doing so we get what we certainly do not want—our honey contaminated with a thin watery substance which flies out readier than honey, this stuff being brood-food. Yet, in my opinion, he is entirely wrong in giving manure-heaps, stagnant ponds, the sides of sewers, &c., as the sources whence bees obtain this substance. Let us compose and console ourselves with the knowledge that if our bees gathered by the pouch-full such chemicals as are there found, they would, in all probability, die ere they reached home, let alone stored it. To ascertain that they cannot bear it in bulk, let any one wet a part of the hand with it and then approach the hand to a hive-door, and if he wants a few cheap stings he will not be sent empty away.

Mr. W. B. Webster is 'warm' (as we used to say at guessing games) when he suggests the bees' presence at manure-heaps is accounted for by them requiring hippuric acid for use in honey conversion, this acid being there in plenty. This is very near, if not a portion of, the true solution of the question. If the bee fed on starch granules, it might go in for storing crystals of hippuric acid, somewhat after the dry-sugar feeding principle. Uric acid might be a better term, seeing that uric is found in animal, and hippuric in human liquid excreta; thus, so to speak, reversing their ordinary positions. If these acids be revolting to contemplate, I may say they can both be artificially made by the chemist. Hippuric will be secreted by all animals which have benzoic acid given them—benzoic, the ancient product of the fragrant aromatic gum-benzoic; benzoic, from which is prepared the delightful essence of bitter almonds, so much used for flavouring. There should be nothing repulsive or objectionable in contemplating these two acids, nor even the manure-heap or sewer-drain itself, so long as such a view remains imaginative, especially when I remind you that our fathers had to trust to the excrements of the camel for the ammonia they required in medicine,—the almost indispensable ammonia,—and that the sources whence musk and civet are obtained are still more objectionable. Again, when the liquid portion of manure is left to itself a certain bacterium (*Micrococcus urea*, Pasteur) sets up ammoniacal fermentation, this resulting in urea changing its form into carbonate of ammonia, one of the most valuable of medicines. Let us then, figuratively, approach the manure-heap without any feeling of disgust, and recognise in it a storehouse of essential elements required for plant-life, and readily transposed by them into food for man. It is rich in pure chemicals, which are only offensive when in an aggregate or conglomerate form, such as nitrates, phosphates, sulphates, and alkalies. We no more expect bees to carry quantities of liquid manure into their hives (and they do not), than we expect the 'maters' of the mammalia to fill their stomachs with salt, chemicals, or medicine, storing the same, and feeding their young upon it.

When we reflect that the honey-bee does not waste the contents of superfluous eggs laid by the mother-bee, and also stores aphidian honey—ourselves also eating with relish those omnivorous cannibals, the duck and pig, refraining at the same time from examining minutely the ripe cheese, pâté de foie gras, caviare, venison, or game—we ought not to be prudish if our bees visit their chemists' shops, and occasionally the stagnant pool. Let us think a little about the origin of the innocent egg and harmless milk (which is a most ready vehicle for zymotic germs), and our honey is purity itself by comparison. Examine the action of *Torula cerevisiæ* (yeast), in the preparation of the staff of life, and we recoil: dig up celery, or onions, gather mushrooms at dusk, and the phosphorescent manure sends apparently living, gleaming threads in all directions, these do not increase our appetite for the food. Why the very vegetables absolutely taste of some manures, and these have to be avoided by the gardener. Examine your lettuce and

watercress under the hand magnifier, and you will 'pass,' —as Mark Twain did.

Now animals (bees as well as men) require a series of salts and chemicals, to be used in assimilating nutritious substances, amongst which may be named salts of potash, soda, lime, magnesia, iron, manganese, gum, pectin, sugar, substances analogous to fibrin, albumen, and gelatine; phosphoric, acetic, sulphuric, hydrochloric, and fluoric acids, and others. Honey itself* contains, besides sugar, gum, wax, mucilage, *extractive* matters, acids, and peculiar flavours. Mr. Cheshire tells us:—'Honey under natural conditions in the hive always contains nitrogenous matter in small amount, or is associated with it; but when honey is replaced by sugar, pure and simple, the absolute absence of albuminoids affects the bee prejudicially;' he truly adds that the arrangement of nature is the right one. Trouessart also says:—'In animals, gastric, pancreatic, and intestinal digestion, together with other changes connected with nutrition and assimilation, which take place in the blood and in all the organs, may be considered as true fermentations.' Pasteur follows this up by laying down the law that 'three things are necessary for the development of the ferment—nitrogen in a soluble condition, phosphoric acid, and a hydrocarbon capable of fermentation (such as grape sugar).' Otto Hehner, the analyst of our Association, informs us that the bee requires water, nitrogenous matters, mineral substances, and carbonaceous materials, for the sustenance and growth of its body. How then are we to expect it to keep itself healthy and thriving,—how, indeed, is it to live at all, if we wish to prohibit it (supposing we could) from taking up such chemical substances as are necessary to it, guided as it is by a never-failing hand into unerring accuracy? Such infinitesimal quantities taken from nature's laboratory, depend upon it, are practically pure and totally inappreciable to us.

We presume that by the aid of an alkaline salivary secretion the bee converts nectar into honey; can we then deny its access to alkalies? How, again, is it to elaborate the brood-food and the so-called royal jelly, if we refuse it the necessary sulphates, phosphates, and nitrates? True, pollen-grains contain these, but evidently not in sufficient quantity, or the bee would not have recourse to what have been considered objectionable sources; pollen-grains, so necessary to the bee for brood-food, also contain starch granules, and these cannot be changed without the aid of powerful chemistry in the economy of the bee. If we watch bees drinking on the moors, we notice them give distinct preference to water trickling from decaying sphagnum and mosses. We now know why. In short, we may take any article of food (and its producer), examine it under the microscope, or touch it with the chemist's wand, and we shall find our honey and our bees have a decided advantage, so far as purity and cleanliness are concerned. For my part, I think we have no business to adulterate our honey when extracting, by using combs containing worms and maggots (for these are but plain English names for brood) floating in or saturated with a maternal secretion or preparation only intended for its food when in a larval condition. I am of opinion we should decidedly avoid broody combs, if not for our own then for the sake of the brood itself; and I hope I have shown that we can safely trust the worker to gather, convert, ripen, and seal for us only such honey as is well fitted for food, chemically pure, scrupulously clean, and faultless to a degree.—R. A. H. G., *Horsforth, n. Leeds.*

* Smith.

WINTER STOCKS.

[1317.] In this week's *Journal* J. H. Rogers (1303) says he never winters stocks that have not sufficient bees to cover ten frames. I feel sure he would confer a boon on many bee-keepers besides myself if he will tell us how he manages to keep up the population to that extent. I have had fifteen years' experience, but can never get mine to cover more than seven or eight combs at the end of September, however strong they may have been during the summer. I once heard Mr. Baldwin say that he never met with a stock that he could not crowd on to six or seven frames in the autumn. There has been a good deal of talk lately about the position of frames, whether those at right angles or those same way as entrance are best. So far as honey-producing goes I find no difference, but for wintering I much prefer those same way as entrance. Last winter I lost only one stock out of an apiary of ninety, and they were all on the Combination system—Abbott's wide shoulders; there are no better frames produced. I have driven upwards of fifty skeps this autumn, and not one contained over 2¼ pounds of bees, more under two pounds than over. My experience is that a stock which covers well six frames by the middle of April is a pretty good one.

I can safely say that this district is free from foul brood. —James Gilbert, *Stamford.*

NORTH-EAST OF IRELAND BEE-KEEPERS' ASSOCIATION.

Annual Show.

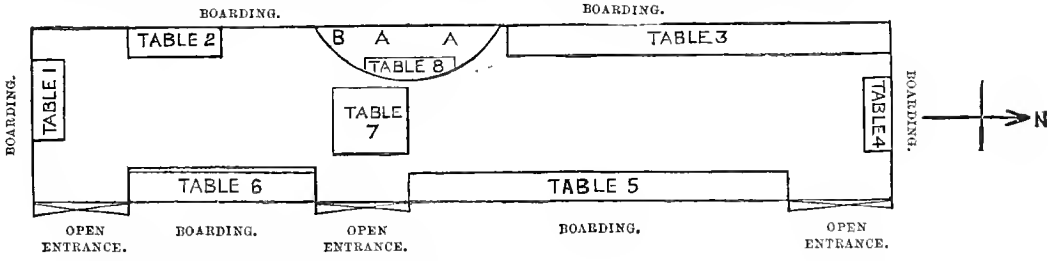
[1318.] Referring to Mr. J. D. McNally's letter in your issue of 22nd September, protesting against so-called irregularities at our late show, with your kind permission I will put the matter as it occurred. The judges were supplied with books containing *only* numbers and which can be produced and were duly signed and returned to me. The hon. treasurer, Mr. S. Cunningham, had charge of the catalogues, and did not get them from printer until a short time before opening of the exhibition. He informs me they were not on sale until after judging was completed. There were two catalogues (proof copies) for use of Mr. Cunningham and myself in staging, and we no doubt acted indiscreetly in allowing Mr. McNally's brother the use of one of them for a few minutes to check over his entries. Beyond this I am not aware of any irregularity. I think Mr. McNally's grievance is, like a good many of the 'Irish' ones now aired before the public, mostly imaginary. I do not think any of the gentlemen who acted as judges would have used a named catalogue, even had it been at their disposal. The office-bearers of the Association have only their spare time to devote to the furtherance of its objects and cannot be expected to have it as 'well managed' as if they were in the bee business. I regret very much that any exhibitor should feel he had suffered injustice, and trust the explanation will be satisfactory. Apologising for trespassing on your valuable space.—Paul M'Henry, *Hon. Secretary, Belfast, October* 15.

I only to-day saw Mr. J. D. McNally's letter in your paper of the 22nd September, and hope you will kindly insert this reply. He must be mistaken as to the names of exhibitors being in the hands of the judges when forming their decision. I made all the arrangements about the catalogues and had them sent to me direct from the printers, and the parcel was unopened till the awards were made. Only two proofs had been previously struck off, which Mr. McHenry (hon. secretary) and I necessarily had for the guidance of ourselves and assistants in arranging the exhibits in the hall; and one of them was lent to Mr. McNally for arranging his own exhibits, but the judges could not have seen or have had any access to these. They had merely books without any names till after their duties were performed and their decisions made.—Samuel Cunningham, *Glencairn, Belfast, October* 14,

MANIPULATING TENT AT THE MANCHESTER SHOW.

[1319.] At this show, instead of the manipulating tent being erected separately in the ground, netting was stretched in a half-moon shape in the centre of the shedding appropriated to honey and bee appliances, and the canvas roof thrown back that the bees might get a clear flight from the manipulator, the hives to be manipulated upon being kept outside the boarding, in which a small door was placed to enable the manipulator to take the hives in and out as required. At the time of the Manchester show the weather was very stormy, and when not actually raining, all agreed it would have been impossible with the high wind to manipulate bees successfully in the ordinary manipulating tent, whereas under the shedding the audience were well protected, and the manipulator could do his work with comparative comfort. Ten hives of bees were on the ground during the time of the show (four days), and still no bees were seen on the honey displayed for competition or sale. The carriage of the manipulating tent in large counties is a serious item, and the manipulations being in a separate tent many visitors to a show miss the time the manipulations are going on. The question is, can a way be devised so that manipulations could be managed in the tent or shedding used at ordinary shows, a piece of netting being hung round the manipulator to prevent any chance-accident from bees stinging the visitors? I take it in all cases it would be necessary to have an opening in the roof above the manipulator.

It is hoped the ground-plan here given will make the method adopted sufficiently plain to the reader.—Wm. Lees McClure, *Prescot*.



A.—Manipulating space enclosed with netting.
B.—A door was on the boarding at this joint, and the Bees for manipulating were kept outside the show grounds and brought in at this door.
Table 1 and 2.—Bee appliances.
,, 3.—Observatory hives with bee tunnels through the boarding.
,, 4.—Secretary.
,, 5.—Honey in comb and bottle.
,, 6.—Collections of honey.
,, 7.—Sale counter for honey.
,, 8.—Manipulating table.

WHERE DO BEES GET WATER?

[1320.] With respect to the sources from which bees obtain the necessary moisture, some of the numerous friends who have kept up a long correspondence on the subject in the *B. B. Journal* may not have had an opportunity of observing that Nature has provided a supply for them in the most convenient situation that is possible, which is the drops of water invariably hanging below the foam of the frog-hopper, and it is also used by the solitary mason-wasp for mixing up the mortar that it requires for building its nest or nests, and moths also avail themselves of the same source of supply, and most probably butterflies and other insects; and as this is obtainable through a considerable part of the summer, upon almost every yard of the ground, over what to them would be otherwise waterless districts, and is the most abundant in the hottest weather, it can only be regarded as one of the many forcible illustrations of the perfect economy of nature.—S. C. K.

BEE-KEEPING IN IRELAND.

[1321.] A Correspondent from Leitrim writes as follows:—'A word about this part of the country might interest you. It is certainly a splendid place for bee-keeping, abounding with floral beauties on which the bees delight. They are all this week working as in mid-summer on the ivy. We have to the south of us two or three hundred acres of heather; to the north-east and west of us, thousands of acres of pasture land abounding with clover (chiefly white), intermixed with numerous honey-producing trees and shrubs, such as the wild raspberry, the bramble, laurel, and giant rose, with plenty of lime and sycamore, hazel and willow within easy reach, and standing in the midst of a garden of fruit trees, leaving out the garden and trees. The whole country for miles and miles is beautifully wooded. But, alas! there is not hardly a bee to store the honey. I can easily count the bee-keepers within five miles on either side of me on my one hand. Four years ago there were only two. The people in those parts seem innocent of any means of industry, their only hobby is the agitator, the potatoes, and the rent. You can form your own opinion.

'Our best hive this season gave us 160 1-lb. sections $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{3}{4}$, four bee-ways worked without dividers.

'Our worst, 40, superseded its queen in April or early in May (black bees). I consider 160 lbs. without reckoning what they may have in the hive, which I feel sure will amount to 30 or 40 lbs. at least, is very good for blacks or any other bee.

'In justice to your *Journal* I must say that I could not get anything like that but for the knowledge I derived from its pages for the two years.'

COTTAGERS' APIARY COMPETITION.

[1322.] To those readers of the *British Bee Journal* who are interested in the working of county bee-keeping associations the following narrative will be of interest. The Association for the county of Kent is fortunate in having for its Local Honorary Secretary, at Hawkhurst, Miss F. Herschel, who, since her acceptance of the appointment, has never ceased to labour indefatigably to bring her district into a high state of efficiency. In this work she has had the encouragement and assistance of her brother, Sir William Herschel, Bart., and it should also be stated, that of Capt. H. S. Swiney, her predecessor in office. Early in the present year the idea was formed of instituting a Cottagers' Apiary Competition, and this being submitted to the Executive of the Association, by whom it was approved, plans were formed for carrying it into practice. At the outset it was felt that the rules which should govern the competition should be as few and simple as possible, and that the order of merit

should be decided chiefly upon the general management and condition of the apiary and surroundings, regard being, of course, had to the amount of produce and number of hives kept. The object in view was to create a greater interest on the part of cottagers in the pursuit of bee-keeping, and to induce the class to utilise for their immediate advantage the benefits which the Association endeavours to place within their reach. To ordinary observation there is nothing to suggest that Hawkhurst possesses any special features favourable to bee-keeping, therefore, the results attained by the competitors attest to the fact of the great superiority of the modern system over that which is fast being superseded, and to the enlightened interest of those who engaged in the competition.

The competition was arranged to commence in the month of June and terminate on the 31st of August, but owing to the inability of the three gentlemen appointed to judge to meet before, it was protracted until the 8th of September. The task of judging was undertaken by Mr. A. J. Pratt of Tenterden, Mr. E. G. Tye of Cranbrook, and Mr. J. Garratt, the hon. secretary of the Kent B. K. A. The work of inspection and judging was performed under most favourable conditions of weather, the day being so fine and warm that no risk in closely and thoroughly examining each hive was involved.

The two first-named judges were on entirely new ground, and therefore were altogether unacquainted with the capabilities of the competing parties, and it was with no little surprise and pleasure that they found themselves in most instances face to face with the most complete proofs of the ability of farm-labourers, and other cottagers, to grasp the principles which by many have been thought to be far above their comprehension. By the thoughtful kindness of Miss F. Herschel, the judges were rapidly driven from apiary to apiary, and accomplished to their own satisfaction the task assigned to them.

The first prize (given by Sir W. Herschel) was awarded to Mr. James Hicks, agricultural labourer; second prize (given by the Kent B. K. A.) to Frederick Reed, of similar occupation; and the third prize (given by Capt. Swiney) to John Collins, of no occupation, but who, owing to an affliction to his legs, had to perform all the work of manipulating and hive-making seated in a wheel-chair.

From the appended tabulated statement the individual results may be easily seen and compared. That they reflect very great credit upon each and all concerned cannot be gainsaid, and it is hoped that so useful and successful an experiment may in the future be productive of many more like competitions in the same and other counties.—J. G.

HAWKHURST COTTAGERS' APIARY COMPETITION, 1887.

Names of Competitors.	No. of Stocks, Spring count.	Produce of Honey during Season.	Average take of Honey per Stock.	Other Produce.	No. of Stocks, Sept. 8th.
Geo. Chapman (Agricul. Lab.)	2 bar-f. 2 skeps	36 1 lb. Secs. 23 lbs. Extd.	14½ lbs.	one swarm	3 bar-f. 3 skeps Increase made by condemned bees
Jas. Hicks ... (Agricul. Lab.)	3 bar-f. 1 skep	99 1 lb. Secs. 62 Extretd.	40½ lbs.	one swarm	4 bar-f. 1 skep
Wm. Blake ... (Coachman)	1 bar-f.	24 1 lb. Secs. 25½ lbs. Ext.	49½ lbs.		2 bar-frame Increase made by condemned bees
Wm. Campany (Dairyman)	1 bar-f.	15 1 lb. Secs. 30 lbs. Extd.	75 lbs.	one swarm	2 bar-frame
Fredk. Reed ... (Agricul. Lab.)	1 bar-f.	75 1 lb. Secs. 83½ lbs. Ext.	39½ lbs.		4 bar-frame
Jesse Marchant (Agricul. Lab.)	1 bar-f.	23 1 lb. Secs. 7 lbs. Extd.	30 lbs.		1 bar-frame
John Collins ... (No occupation crippled)	2 bar-f. 1 skep	32 1 lb. Secs. 76½ lbs. Ext.	36 lbs.		2 bar-f. 1 skep
H. Lambert ... (Gardener, &c.)	Owing to virulent Foul Brood did not continue competition				

MEMS. BY WOODLEIGH.

[1323.] *Propagating Foul Brood.*—In addition to the various ways in which the pest may be propagated (*vide* former 'Mems.'), I would point out to bee-keepers another probable source of infection rendered possible by the new labour-saving solar and steaming wax-extractors. Now if combs from hives reeking with foul brood are put into these extractors and the wax extracted from same, we know that the temperature at which wax melts would not be high enough to destroy the germs of bacilli, and consequently the foundation made from infected wax must carry the germs with it wherever it goes.

'Man of Kent' (1283) asserts that foul brood is following the wake of bar-frame hives with rapid strides. I do not doubt his assertion; but why is it thus? Simply because of the many opportunities for its propagation and introduction into bar-frame hives in comparison with the straw skep. The skep is simply a bee-nest left unmolested till the sulphur-pit puts an end to the majority of the colonies at 'taking time,' and the few instances in which foul brood has appeared in skep apiaries may always be traced to the introduction of modern hives into the district.

Yet one more possible means of infection, though I recount it with some trepidation, and that is by the circulation of the *B. B. J.* If it is handled by a bee-keeper who has been manipulating foul-broody stocks of bees, may he not unwittingly transmit the germs to the next on the list, who, on receiving the *Journal*, finds he has neglected doing something in the apiary, lays down the paper, and sets about the 'doing,' and possibly the infection is transmitted to another apiary?

Extracting from Brood Combs.—I am glad Mr. Boyes has answered 'W. J. S.' I should have endorsed Mr. B.'s views when his letter first appeared, but considered Mr. B. quite capable of taking his own part. I may add that any practical bee-keeper who works or cares for the well-being of his bees would never under ordinary circumstances extract from combs containing brood in all stages. I have this season, in a few instances, extracted from combs containing a small patch of capped brood, and, to prevent injury to the brood, laid a piece of flannel over the brood to prevent the capping being crushed by the wire of extracting-cage while revolving in the extractor, but that was from brood-comb clogged with honey to give breeding space. Bee-keepers who extract from combs containing eggs, larvæ, &c., must, as Mr. Boyes says, extract the prepared food, the thin, watery honey, also the eggs and larvæ.

Bees and Manure Heaps or Drains.—I beg to endorse what Mr. Boyes says as to bees drinking from the oozing slush that exudes from manure-heaps; and although one correspondent says bees are not such fools as to visit such places if they have water within three miles, I can assure him that bees do visit such places with an abundant supply of both good water and also a supply of diluted sodium.

Starting a Bee-farm.—The two replies to 'A. W. B.' in last week's *Journal* are both from practical men, and now this week's from Mr. Godfrey, giving an estimate of the probable cost of the enterprise, has covered all the ground, so that I have burnt a rather long letter in reply, and will only say a few words on the subject. I myself a few years ago had an idea of starting a bee-farm as a means of livelihood, but on giving the matter mature consideration, and looking at the large number of hive-makers who were then (and are still) sending out great numbers of hives in all directions, not to mention the number of home-made ones, I reasoned that the thing must of necessity be soon overdone, and prices go down for the produce of the bee-keeper; and present prices are proving my surmises right, and in 1887 I am glad I did not embark in the farm of 1882. My experience has taught me that bee-keeping in England would not pay to take up with it alone; but if 'A. W. B.' has any trade

or calling, he may work a fair-sized apiary as an auxiliary, and derive a profit from it. I have no doubt that in the near future we may have to accept a lower price for honey than at present. The American and Canadian crops of honey this season are both very short, but another season it is probable they may have a good crop, and then the competition would be keen, as the freight per steam ship is a nominal sum when compared to what our English railways charge us for carriage of honey, and the public have little, if any, more predilection for English honey than they have for bread made of English corn in preference to foreign.

ON BROOD-COVERS.

By Pastor Schönfeld of Tentschel.

In No. 3 of the *Nördlinger Bienenzeitung* for 1884, Dr. von Planta communicated the results of a microscopic and chemical examination to which brood-covers of bees had been subjected by him. The microscopic examination which Professor Schröter of Zürich made of the brood-covers submitted to him, showed that they consist of a 'granular substance, cemented together by wax and mixed with whole and crushed grains of pollen of different plants.' The chemical examination of the brood-covers by Dr. von Planta showed that 100 parts by weight of air-dried brood-covers contain—

57·60 per cent of wax,
40·27 „ „ matter (pollen and pollen-husks) insoluble in boiling ether,
2·12 „ „ water.

From this Dr. von Planta thought himself justified in expressing the conjecture that the bees mix with the wax they use to close the brood-cells both whole pollen-grains and pollen-husks ejected by workers, in order to make the covers more porous and better fitted to receive the necessary supply of air.

The editor of the *Nördlinger Bienenzeitung*, as well as the majority of bee-keepers, rejoiced at this discovery, which they looked upon as a welcome addition to our knowledge of bees. Dr. Dzierzon, however, soon raised objections. He did not, it is true, bring forward any scientific counter-proof, and did not even submit the brood-covers to examination, nor did he state positively how the matter really stands. Neither are the conjectures which he starts such as to stand the test. For when he states—*Nördlinger Bienenzeitung*, 1885, page 26—that the larva may, perhaps, impregnate the cover with its saliva or some exudation and add to it by pressing against it some remains of the food, supplied, perhaps, in excess, we at once feel the weakness of the attempt to get rid of the difficulty. Besides, this supposition is in contradiction to every microscopic examination made, as the pollen and the pollen-husks are found in horizontal and perpendicular sections of the covers, firmly embedded in the mass, as well as on the surface of the covers, where the larvæ cannot possibly get at them; and when Dr. Dzierzon lately called von Planta's discovery a mistake because, as he alleges, bees cannot eject pollen, he is equally mistaken in this supposition.

At the same time, the doubts of Dzierzon, who is so great an authority, will have unsettled again the opinions of many bee-keepers as to the nature of brood-covers. I have, therefore, with the consent of Dr. von Planta, subjected the question in dispute to a further examination, which has given some startling and novel results.

It should, in the first place, be stated that brood-covers, such as Professor Schröter and Dr. von Planta had an opportunity of examining, are doubtless in such a condition as has been described. But neither of these gentlemen being practical bee-keepers, they were obliged to operate upon the material placed before them by Mr. Kramer, a schoolmaster of Fluntern, which consisted exclusively of coffee-coloured brood-covers. They were thus unable to test the matter thoroughly, and this has led them to draw conclusions which are incorrect.

In dark-coloured wax-combs of all shades not only the brood-covers but also the honey cell covers, the edges of the cells, the cell walls, and cell foundations, are all more or less mixed with pollen and the husks of pollen. Every wax comb which has been used only once for breeding, and every small piece of new comb which has been constructed partly of old material, shows, in addition to whole pollen-grains, numerous fragments and cells of pollen. From a wax-comb made by the bees in June, 1886, the lower part of which I shortened about 10 c.m. last autumn, I took a small piece about the middle of May this year, after the bees had completely renewed the portion of the comb cut away. Three days later, when the bees had repaired the damage, I cut the same part away once more, and afterwards a third time. All the three small pieces of wax removed contained pollen and fragments of pollen, the piece built by the bees first having the largest number, and that made last containing the smallest quantity. The number of pollen-grains and pollen-husks mixed with the wax is always in proportion to the colour, *i.e.* the age of the combs. The older the comb the less the weight of the wax it contains, and the greater the quantity of pollen and pollen-husks found in it, so that wax-combs of an almost black appearance contain much less than 50 per cent of real wax (coffee-coloured comb, 57·60 per cent), a fact which every practical bee-keeper will have realised in melting down old comb.

Nay, more than this, not even wax newly made and worked up into cells or cell-covers is absolutely pure. It is true it does not contain any husks and fragments of pollen, but often a surprisingly large number of whole pollen-grains. In order to procure absolutely pure wax I put a swarm which issued on 3rd June into a new hive without any guide-combs, but almost every small piece of wax the size of a poppy grain which I cut off the end of the newly-made comb contained whole pollen-grains. A few only of the slides I prepared showed wax in an entirely pure state. I then caught a few comb-maxing bees, and with a needle drew forth the small wax-scales from between the rings of their abdomen. On examining these I found that out of fifteen scales four only were entirely pure wax, the remainder containing from four and five to thirty whole pollen-grains. (*To be continued.*)

Echoes from the Hives.

Scotten Street, Wye, Kent, Oct. 17.—Seeing no report from my neighbourhood, I am glad to say I have had a splendid season this year for honey, which has been the best year I have had. I have three bar-frame hives, and from one hive I have taken forty 1-lb. sections, and one sectional super weighing twenty lbs., and about thirty lbs. of extracted, and from the other two I have taken nearly the same, which I think you will consider very good for a young beginner. I may say that I have worked my hives upon your storifying system, which I have found a success. I enclose you a sample of my extracted honey, and shall be glad to see your report upon it in the *Bee Journal*.—H. Head.

[We are very pleased to receive such an cheering report from your district. The accompanying sample of honey is of excellent quality, and of clear colour. It would command a good price in the market.—Ed.]

Honey Cott, Weston, Leamington.—Have packed all stocks up nicely for winter, with the exception of two lots of driven bees that I only took about a week ago, but to which I gave combs ready built; I have shut them up pretty close and fed them with a bottle of warm syrup every night, and which they carry down and store below. We have had

some very severe frosts the last few nights, but the sun is quite hot to-day (noon), and the bees are taking advantage of it, to have a good fly, in fact it seems just like summer, there are so many out and about. As I have run rather short of hives, I have been putting driven bees in half-inch and three-quarter hives; having packed the tops well and put roofs on, I expect I shall get them through all right, also I set them in pairs, so that in the spring I can take one of the queens away and join the one to the other, and thus make good strong stocks.—JOHN WALTON.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

T. S.—*Bees Dying.*—The only cause we can assign for the great mortality in your colony, judging from your description, is an attack of *Bacillus Gaytoni*. Taking advantage of the first fine, warm day, transfer combs and bees to a clean, dry hive, and feed with phenolated syrup according to Mr. Cheshire's recipe. Cover up warmly, and give plenty of air by enlarging the entrance of the hive. Since the bees are reduced so much in number, unless you can unite them to another colony, changing the queen, it is doubtful whether they will survive the winter.

R. W.—*Foul Brood.*—The comb sent is not affected with the virulent form of 'foul brood,' *Bacillus alvei*, but by another type, called *Bacillus minor*. Feed up, in the spring, with phenolated syrup.

T. D. S.—1. *Canadian Bee-Feeder.*—There is no occasion to remove the Canadian bee-feeder when refilling. All that is needful is to bring can or other vessel with syrup, and pour in at the receptacle specially reserved for the purpose. The lid has to be pushed aside so as to get at the opening referred to. 2. The amount of syrup given will be ample.

T. JENKINSON.—The contents of your letter merit, and will receive, our best consideration.

SHERBORNE, *Dorset.*—Your letter is based upon a fallacy. The shareholders in the British Honey Company have never received any dividend.

SUBSCRIBER.—*Re Foul Brood.*—T. F. Ward writes in reference to a question of 'Subscriber' respecting P.S. to Mr. Ward's last letter:—'In reply I should say all depends upon the strength of the affected stock, whether to destroy it or not; if a weak one I should say yes, but if a good strong stock, say, eight or ten frames covered, then it might be worth while risking a healthy queen, but the process is a wet one, and he cannot at this season continue the necessary examinations, nor could the bees seal over the medicated syrup. If it is a strong stock with plenty of food, and a healthy queen can be obtained early next year, say March, the combs might be sprayed now, the queen removed, and let it pass the winter without a queen (as many others do); but circumstances alone must be the guide now, as it is not possible to follow the rule, and if there are other hives situated near there would always be the danger of infection through robbing. Unless I knew the whole circumstances I could not say yes or no.'

Business Directory.

HIVES AND OTHER APPLIANCES.

ABBOTT BROS., Southall, and Merchants' Quay, Dublin.
APPLETON, H. M., 256A Hotwell Road, Bristol.
BAKER, W. B., Muskham, Newark.
BALDWIN, S. J., Bromley, Kent.
BLOW, T. B., Welwyn, Herts.
BRITISH BEE-KEEPERS' STORES, 6 George Yard, Fenchurch St.
BURTT, E. J., Stroud Road, Gloucester.
EDEY & SON, St. Neots.
HOWARD, J. H., Holme, Peterborough.
HUTCHINGS, A. F., St. Mary Cray, Kent.
MEADHAM, M., Huntington, Hereford.
MEADOWS, W. P., Syston, Leicester.
NEIGHBOUR & SONS, 149 Regent St. & 127 High Holborn.
STOTHARD, G., Welwyn, Herts.
WEBSTER, W. B., Wokingham.
WOODLEY, A. D., 26 Donnington Road, Reading.
WREN & SON, 139 High Street, Lowestoft.

HONEY MERCHANTS.

ABBOTT BROS., Southall, and Merchants' Quay, Dublin.
BAKER, W. B., Muskham, Newark.
BALDWIN, S. J., Bromley, Kent.
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Editorial, Notices, &c.

NEW INVENTIONS.

One of the most interesting features of the Quarterly Conversazione is the exhibition of new things in the way of bee-appliances, &c., which are explained to the visitors present, and a free discussion as to their value takes place. At this meeting Mr. Godman of St. Albans exhibited an improved machine for making brood-comb foundation with a natural base. In most of the machines there is frequently a difficulty in getting the front edge of the sheet of foundation to leave the indentations in the rollers, and recourse has to be had to a quill to get the wax out of the same before you can get sufficient through the machine that you can take hold of. In Mr. Godman's machine the rollers are kept sufficiently open to allow the front edge of the wax-sheet to be passed through until you can take a firm hold of it, when, by the pressure of a lever the rollers are brought into close gear, and the foundation is wound through in a satisfactory manner. This machine (an illustration of which will be found in our advertising columns) is strong and well made, and is an improvement on any we have seen.

Mr. Godman also exhibited some frames with metal ends, which are made in pairs, so that the frames can be either 1½ inches from centre to centre, or by turning the alternate frames end for end they will be 1¼ inches from centre to centre at the option of the manipulator, so that whichever width it is desired to have the combs apart the exact distance is correctly kept. These ends obtained a medal at Newcastle, and are as useful as any in the market.

Mr. Lee exhibited some samples of his patent sections, most beautifully made by a model of a machine it is intended to use for making. The ingenious and perfect way in which the dovetailed grooves were cut was shown by the great exactness of the work done in the specimens exhibited. In some of the parts so beautifully had the grooves been made that the piece cut to form the groove actually remained in its position as if it had not been operated on, but with the point of a knife being pressed on it, the strip came out whole, to the surprise of those who saw it. We understood Mr. Lee to say that sections of this kind will be ready for the trade and customers by the end of January. Mr. Lee has made some sections of a size that can be used in the old crates, some of which he exhibited in a crate. He had also examples of section cases, each frame holding three 1-lb. sections. Seven of these frames complete the tier, and are securely held in position by a simple and novel method, so that, if desired, they can readily be inverted. Mr. Lee exhibited another crate containing seven hanging frames, each holding two 2-lb. sections. Some fine samples of comb-honey in the new sections were exhibited, having been filled in the apiary of the Rev. Geo. Raynor, and some from the apiary of Mr. F. Palmer, Sunninghill, Berks, in the section cases and frames noticed above. The sections were well filled to the edges, and were free from popholes, the wood of the section being clean and free from propolis. Great interest appeared to be taken in Mr. Lee's exhibits, which were carefully examined and freely criticised, and many very favourable opinions were expressed by those present, many of whom were old and experienced bee-keepers. The crates, cases, frames, and sections, are all put together without glue or nails, and we hope shortly to give in the *B.B.J.* a more detailed description of these useful inventions.

A machine for fixing foundation in sections was exhibited, the invention of Mr. Aplaugh of Canada, made by Mr. Corneil and his son, and kindly sent by that gentleman as a present to the B.B.K.A. Mr. Cowan, who had seen a similar machine worked by the inventor, explained it, and fixed several pieces of foundation in a very satisfactory way. It is somewhat difficult to describe the machine so as to make it intelligible without a drawing. It consists of a frame about fifteen inches square at the base and about twelve inches high; about half way up there is a stage, on which the pieces of sections are placed; in front of this is a metal plate, about four inches square, slightly bent towards the piece of section to be operated on, which it rests nearly in the centre. The stage has a back to it so arranged that half of the piece of the section can pass under, the back forming a support for the newly fixed foundation as it passes along from the metal. Opposite to the metal there is an arrangement for pushing up a sliding back in line with the fixed back, this being the same width as the metal. Underneath a paraffin lamp is placed for the purpose of heating the metal plate, so that the edge of the foundation is melted when placed upon it. With the assistance of a thin piece of wood the foundation is then quickly slid from the heated plate on to the top piece of section, and is kept upright by the sliding back; this is now slipped back, and the next piece of section pushed into position; and in so doing the one just operated on is passed along the stage, and by the time it gets to the end the foundation is firmly fixed, the wax edge having had time to cool. This machine is suited for fixing foundation in four-piece sections only, which have to be put together after the foundation is fixed.

The meeting passed a vote of thanks to Mr. Corneil for his kindness in sending the machine, which was exceedingly well made, and quite a novelty.

BRITISH BEE-KEEPERS' ASSOCIATION.

Meeting of the Committee, held at 105 Jermyn Street on Wednesday, October 19th; present, T. W. Cowan (in the chair), Hon. and Rev. H. Bligh, Rev. Dr. Bartrum, Rev. F. T. Scott, the Rev. G. Raynor, the Rev. F. S. Sclater, Captain Campbell, J. M. Hooker, H. Jonas, and the Secretary. Letters were read from the Rev. F. G. Jenyns, Captain Bush, and the Treasurer, regretting their inability to be present.

Communications were considered: (1), From the Derby Association, in reference to the award of the Association's Silver Medal to an exhibitor residing outside the boundary, as defined by the Derby Association. The Secretary was instructed to inform the Secretary of the Derby Association that the Committee were unable to award the medal under the circumstances. It was further resolved that the question of boundaries should be considered with the County Representatives.

(2), From Mr. J. P. Sambels, suggesting that the Association should forward a complete set of the Association's publications to the Ontario Bee-keepers' Association. Resolved that the Secretary do forward the publications as suggested, and to express the best thanks of the Committee to Mr. Sambels for his suggestion.

The prize-schedule for the Royal Agricultural Show to be held at Nottingham in July next, as prepared by the Exhibition Committee, was considered and approved.

Quarterly Meeting of County Repsentatives.

Present: Rev. E. K. Clay (Bucks), W. Lees McClure (Lancashire and Cheshire), Rev. W. E. Burkitt (Wilts), Messrs. Graham and Rayner (Middlesex), F. H. Meggy (Essex), W. B. Webster (Berks). Mr. McClure suggested that, inasmuch as several of the representatives travelled long distances to attend the meetings, some further facilities should be given for the representatives themselves to hold a meeting prior to their meeting with the B.B.K.A. Committee, in order that any subject to be considered might be discussed and presented to the Committee in proper form. The suggestion met with the unanimous approval of those representatives present; and the Secretary was requested to communicate with the County Secretaries and make arrangements for such meeting to be held on the date of the next Quarterly Conference in accordance with the suggestion of Mr. McClure.

The question of the disposal of honey and the advisability of the B.B.K.A. taking steps to get the current prices of honey stated in the columns of the *Bee Journal* was discussed at considerable length. Mr. Meggy, the Rev. E. K. Clay, and others, took part in the discussion, and strongly urged the Committee to use their influence with the several dealers to give quotations regularly.

Mr. McClure reported that honey was now staged continuously for sale in the Liverpool Market.

The question of awarding the medals of the B.B.K.A. at County Shows was discussed. The Committee were recommended to take into consideration the advisability of confining the competition for these medals to members of the County Association residing within the county.

Quarterly Conversazione.

The last Quarterly Conversazione of the present year was held at the offices of the Royal Society for the Prevention of Cruelty to Animals on Wednesday, the 19th inst., when among the crowded audience present were the following ladies and gentlemen:—Mr. Cowan, Mr. Hooker, Captain Jonas, the Hon. and Rev. Henry and Mrs. Bligh, Miss Gayton, the Rev. Mr. Scott, the Rev. G. Raynor, Captain Campbell, Mr. Meggy, Mr. Henderson, Mr. Webster, Mr. Grimshaw, Mr. Andrews, Mr. Sambels, the Rev. W. E. Burkitt, Mr. Lyon, Mr. Garratt, the Rev. Mr. Clay, Mr. Baldwin, Mr. Neighbour, Mr. Maclure, Mr. Crawley, Mr. Fatt, &c.

Mr. Cowan presided, and in opening the proceedings said that no special subject would be brought forward for discussion, but that there were several appliances and inventions for exhibition and examination.

The Rev. Mr. Scott suggested that as the Chairman had very recently paid a visit to North America, where he had seen many of the Canadian gentlemen who were in London last year, and had also inspected some of the largest apiaries in the world, it would be extremely interesting to the bee-keepers present if he would kindly describe the wonders he had seen, and also what kind of a reception he had met with from their brethren on the other side of the Atlantic.

The Chairman:—When I came here to-day I was not prepared to make any lengthened statement respecting my journeys in North America, but as it seems to be the general wish that I should say something on this matter, I shall be very pleased to give you an outline of what I have been doing over there. It is just three months ago since we (my wife and I) started for New York. After a fair passage we landed in that city, where the thermometer registered 99°, which seemed a very high temperature on coming off the ocean. We could not therefore stay in New York, but journeyed north up the Hudson River to Albany. From there the first establishment we visited was that of Messrs. Aspinwall and Treadwell. These gentlemen are in business together as hive-manufacturers, queen-breeders, and dealers in bees. Their trade is not on a very large scale, but they do a fair amount of business. We stayed a few days with Mr. Aspinwall, who is proprietor of the *Bee-keeper's Magazine*, whom I found a most intelligent gentleman, fond of scientific pursuits. I found their appliances are very much the same as ours; and I may here take the opportunity of saying that throughout my wanderings in the States and Canada I noticed that most of the contrivances in use were similar to those adopted by us in England. I have been enabled to carry away a few new ideas: but I feel justified in remarking that we are quite equal to our transatlantic friends as regards hive-making and all the appliances necessary in bee-keeping. That which struck me most to the disadvantage of England, was our deficiency in pasturage. You would be perfectly astonished to see the thousands and thousands of acres of waste land across the water filled with an abundance of honey-yielding plants, immense quantities of honey being lost owing to the want of bees to collect it. After spending a few days with Mr. Aspinwall, he took me to see Messrs. Knickerbocker and Lock, the queen-raisers in New York State. Mr. Lock is the former editor of the *American Apiculturist*. These gentlemen raise queens in a way very similar to the Alley system, that is, by inserting strips of cells, and destroying every other egg. They rear the queens in the same way, but destroy two eggs for one left, and keep them in very much the same way as he does. From there I went to see the largest bee-keeper in the world, Captain Hetherington, who has 2700 hives. He has twenty apiaries, situated at distances of two or three miles apart, in a radius of twelve miles, so that the greatest distance he has to go from home is twelve miles. He and his brother manage the whole of these apiaries, having several men under them; they keep horses and carts, and are hard at work all day long and continue till evening. Business is commenced at 5 o'clock in the morning. I was there during the hours of business and saw all the working. The men go round from hive to hive and take off crate after crate; perhaps a hive has three storeys of sections, which are promptly examined, and removed if necessary, and in this way 100 or 150 racks of sections are taken off and carried away. The sections are not removed singly, as we remove them. Captain Hetherington produces the largest quantity of

honey in the States. He does not puff himself, and he never writes to any of the papers; in fact, one seldom sees his name appearing anywhere in connexion with honey-raising. He is one of the most advanced bee-keepers, and the largest producer of honey with the least fuss I have ever seen. He has been at this work for thirty years, always keeping a little ahead of the generality of bee-keepers. He is a good business man, and knows how to gratify the popular taste, having no difficulty in selling his honey. He uses sections the same as we do, and also separators. He says it would not answer his purpose to do without separators, as he requires every section to fit into a crate, because there is no time for delicate manipulations, he and his staff working at high pressure from early morning till late at night. Captain Hetherington drove us over to see Mr. Ellwood, who is also an advanced bee-keeper, owning 400 hives, and who goes in principally for 2-lb. sections. We also made the acqnaintance of Mr. Van Deusen, who makes the beautiful flat-bottomed foundation so well known in this country. From Captain Hetherington's we went to Boston, and other places. As I before explained, we were obliged to direct our steps northward owing to the high temperature. We therefore went to Quebec, Montreal, and other places, regretting that Mr. Pringle was too ill to see us when we stopped at Napanee. At Owen Sound we spent an agreeable time with Mr. McKnight. He has 200 hives of bees, and uses sections without separators. I saw a number of his sections; they looked very nice, but some not quite so even as those that were produced with separators. I found, generally, in Canada that it was the practice to dispense with separators, while in the States they were almost invariably nsed. The Canadians claim to produce more honey without separators. After spending some time with Mr. McKnight, I went with him to visit Mr. Jones, and saw his works. He is the largest manufacturer of appliances in Canada, and has a 90 horse-power engine working the machinery for the construction of these articles. I was much interested by what I saw there. The business is conducted on a large scale. Hives are made in pieces, and stored away by the hundreds, and are supplied to pnrchasers by the dozen, the score, or the gross. Cases are made up of ten hives together. In Canada bee-keepers work on a large scale, there being very few in a small way of business. They go in for it as a commercial nndertaking: and, of course, taking into account the pasturage and the immense extent of their country, they can do so better than we can. While at Mr. Jones's Mr. Corneil came and invited us, and we spent a very pleasant evening together. The journey from London to Liverpool is only a question of a few hours, but travelling in America from one city to another generally occupies a great many hours. The country is not so populated as ours, and I found it necessary sometimes to make an excursion of 500 or 600 miles from one bee-farm to another. On one occasion I went nearly 1000 miles to see the establishment of one honey-producer and foundation-maker, and that was of Messrs. Dadants', of which I shall say more hereafter. After inspecting Mr. Jones's manufactory, his 400 hives, and his queen-raising arrangements, we went to Lake Superior, and from there through Michigan State to Lancing, where I stayed with Professor Cook. He does not keep bees on a large scale; he is more of a scientific bee-keeper, and tries experiments with different hives, the results of each of which are kept separate. His object is to teach entomology and bee-keeping to the agricultural students, so as to enable them to commence that pursuit on leaving the college. There are about 300 students at this Agricultural College, many of whom are interested in bees. On one afternoon Professor Cook asked me to take his class of about forty students, and I am glad to tell you that by means of my microscope I was enabled to show them some things they had not seen before. They were generally well-educated and intelligent men, who, after leaving the college, go out as farmers. The time spent at the College was most agreeable, the Professor being a charming and sterling man. While there I found my way to Mr. Heddon's. He seemed to me a very intelligent gentleman, very quick to seize an idea and appreciate the experience of others. He showed me his apiaries, although he was unfortunately suffering from bee disease, which affects him in a very peculiar way, namely, by producing catarrh, so that he cannot open a hive himself without being attacked by this complaint. However, as I was there, he showed me how the hives were manipulated, the consequence being that he suffered considerably all the evening. He showed me the handling of the shallow hives, and how easy it was to find the queen. I ascertained that he brought his bees through the winter very unsuccessfully, and had lost as many as from forty to fifty per cent in wintering. We discussed the merits of the Heddon and Stewarton hives, and in the course of conversation he stated that last year was a very poor honey season, which bore out the complaint of the Canadians who were over here in 1886. I cannot remember what he said was the average produce, but it was not more than 20 lbs. a hive at any rate. I found in his district the honey season had been very bad, whilst in some parts of New York State the reverse was the fact, 60 to 80 lbs. per hive being an average yield expected; but there were other districts in which not more than 10 to 15 lbs. were obtained. One gentleman (the President of the Michigan Association) jokingly said that no one would believe I had been to the States if I returned to England without boasting about something, and he further said if I came to him I could boast I had seen the apiary where nearly 1 lb. of honey per hive had been obtained this year. From Mr. Heddon's I went to Chicago, and met an old friend, Mr. Newman, who showed me over his place, which is in the city. Unfortunately, I did not let him know when I was coming, and, consequently, he was unable to get any bee-keepers to meet me, but he was most hospitable, taking me for a five hours' drive through the city, and showing me all the lions of the place. From there I went to see Mr. Dadant. He is a Frenchman, who settled in America some years ago, and with his son carries on the bnsiness of bee-keeping. They also make a large quantity of comb foundation. Last year they turned out 70,000 lbs. of foundation, but this year not more than 50,000 lbs., as the season had been such a bad one. It is the best natural-based foundation I have seen in America. They melt about 3000 lbs. of wax at a time, and in this way are able to get the colour uniform. The foundation most in demand in America is the natural base foundation made on the Van der Voort machine. They also produce a large quantity of extracted honey, and a little comb honey. They work the extracted honey just as we do, by storifying or putting one hive on another. Their hive is a little larger than the Langstroth hive, with supers about six inches deep. These frames are used for extracting. They have 400 hives now. This year has been a very bad year, they having obtained only 9000 lbs. of honey. I think the bad season is demonstrated by the fact that their issue of foundation this year has been 20,000 lbs. less than last year's. From the Dadants' I went back to Chicago, and spent a little more time at Lancing. From there we travelled on to Toledo to see Dr. Mason. He was out, but he visited me in the evening, and we had a chat about bees and other matters. I found him a very nice, agreeable gentleman, quite well up in bee matters. Mr. Cutting, Secretary of the Michigan Association, who is a very smart and energetic worker in our cause, accompanied him, and I regretted time did not permit me to stay longer to visit them. From Toledo we passed on to Medina, where we saw Mr. Root and

his son, Ernest. Mr. Root is the editor of *Gleanings*, and he and his son made our stay there most pleasant. They are both very intelligent and anxious to pick up information. We spent a very agreeable time at Medina. Mr. Root is a very different kind of man to what I had pictured him. He is short, thin, and seems quite worn out with work. He has worked extremely hard, and has succeeded better than any one else on that side of the ocean in popularising bee-keeping and creating a demand for appliances. He employs 150 hands making nothing but hives and appliances. Everything is turned out on a large scale. He has machinery for doing almost everything, and it was quite a treat going over his large factory and his yard. I met one or two Englishmen employed there, who seemed well satisfied with their lot. I found men hard at work when I visited the manufactory, one making the metal corners for the frames was stamping them out by a very ingenious machine for the purpose. At Mr. Root's, as I had my microscope with me, I was enabled to clear up some points respecting foul brood. He knew all about foul brood practically, but had not been able to make any close investigation of it microscopically. I must tell you that wherever I went I found the microscopes in use inferior to that I had with me. Even Professor Cook had not seen the germs themselves, although he had a mounted slide containing specimens. When I showed him the bacillus under my microscope with a one-twelfth Powell's oil immersion, he was much interested. There was no instrument in the College with such magnifying power. Mr. Root told me he had never before seen foul brood in its different stages. The disease over there is exactly similar to what we have here. From Mr. Root's we went to several other places, Niagara among the number, and afterwards met by invitation the Canadian bee-keepers at a large meeting and exhibition of hives and honey in Toronto. The exact quantity of honey exhibited I cannot remember, but the figures were given in the *British Bee Journal*. The exhibits of two hive-manufacturers, the D. A. Jones Company and Messrs. Gould, occupied a great deal of space, but the honey was rather crowded, like the Canadian exhibit here, which militated against the attractiveness of the show. The clover and lime honeys were excellent. As regards the lime honey I think it is superior to ours, the Canadian climate being better suited for its production, but clover honey is as good here as over there. They had an extraordinary, but, to my mind, somewhat objectionable, way of selling honey at the show. A section was cut into four pieces, and each piece offered for sale separately, five cents being charged for a quarter. You would see people distributed all over the show biting at these pieces of comb, and eating it as they walked along. By this method a large quantity of honey was got rid of, but it was not pleasant to see the people pushing about in a crowd and messing each other with the sticky substance. I expressed my opinion at the time to some of the bee-keepers, but they assured me it would be impossible to sell the honey at that exhibition on any other plan; and as the all-important object at these shows is to sell the honey, I suppose the custom is likely to continue. At this meeting I had the opportunity of seeing a large number of the Canadian bee-keepers. They came from districts far and wide. Mr. Young, editor of the *Norwegian Bee Journal*, was there at the time, and we were both very hospitably entertained by our Canadian friends. We also met Mr. Holtermann, our Canadian correspondent, Messrs. Pringle, Emigh, Alpaugh, Hall, Rev. W. Clarke, Mr. McPherson, Mr. McKnight, Mr. Corneil, and others. I was honoured by the presentation from the bee-keepers of Ontario of an address, and also a walking-stick with a gold top, which lies here for your inspection on the table. The address has appeared in the columns of the *Journal*, where the walking-stick cannot be inserted. I am glad to say that everywhere we went in Canada and the States we met with a most hospitable reception. We became on good terms at once, our co-workers over the water doing their best to make our time agreeable; they showed us everything, and our difficulty was to find sufficient time to see all there was to be seen. We might have stayed several days longer at each place, and been made most comfortable and welcome, but it was not practicable under the circumstances. At the Toronto meeting of course I was asked to say something about the B.B.K.A., and I made a special point of describing briefly the working and organization of the Association. They were very much interested to hear the record of our work and system as they have nothing of the kind over there. Their Associations are merely Associations of bee-keepers in certain districts, who meet for the purpose of talking over matters connected with their work. After the pleasant time spent at the Toronto exhibition, we went to see Mr. Hall of Woodstock, Vice-President of the Ontario Association, one of the largest Canadian honey producers. He has 400 hives, and has produced as much as 200 lbs. per hive. Of course he is not able to do that regularly, 80 to 100 lbs. being a good average. He makes bee-keeping his sole business, and depends on it entirely for a living, as many others do in America: Captain Hetherington is one, for instance; he was a Captain in the army during the rebellion. He started bee-keeping, and being fond of it, made so great a success that he has managed to live sufficiently well and bring up a family on the proceeds of the business. Mr. Heddon has made bee-keeping his only means of subsistence, besides lately the editing of a local paper. He had very little money at starting. Mr. Hall was obliged to give up the business he was in owing to bad health, and took to bee-keeping as a livelihood. He is bringing up his family upon it. As a business, speaking generally, it answers very well in America. At Mr. Hall's I picked up a great many ideas, but I cannot describe everything on the spur of the moment, having seen so many different things: I shall, however, be able to enter more into detail in the *Bee Journal*. From Mr. Hall's I went with him to Mr. Pettitt, President of the Ontario Bee-keepers' Association. As he was not able to be present at the Toronto meeting, I thought it was only right I should go and see him, and I stayed with him from Saturday to Monday, and spent a very pleasant time there. His hives are very similar to ours, and he has adopted a frame almost the size of our standard, which he finds answers quite as well as the deep frame he had been using. He works with sections of one and three-eighths width without separators. From there Mr. Pettitt accompanied me to see two or three other bee-keepers who lived between his place and St. Thomas. One of these, Mr. Alpaugh, a young man, I found to be an advanced bee-keeper, of great intelligence. He is the inventor of the machine for fixing foundation in sections, which I will show you at work here to-night, and which has been sent by Mr. Corneil. You will see it is an ingenious contrivance, but, unfortunately, I cannot show you the working of it as well as he did himself. From Mr. Pettitt's we went through New York State to Washington, and from there to Philadelphia. In Carpenter's Hall at the latter city, we met with a hearty reception. This Hall is of great historical interest, for it was there that Washington sat, and the first Congress met, and the Declaration of Independence was signed. At Philadelphia, we made the acquaintance of several scientific bee-keepers. I believe there are more scientific bee-keepers in Pennsylvania than in any other part of the States. Dr. Townsend is President of the Association. Mrs. Thomas, who goes in actively for bee-keeping there, asked if we had any lady bee-keepers in England. On my replying 'yes,' she said we ought to make more of that fact in the *Bee Journal*, because such notices would stimulate other ladies to undertake

the same pursuit. Although it might do in America, bee-keeping on a large scale was not suitable for ladies in England (laughter). This may appear strange, but there is, undoubtedly, a difference between the mode of life led by ladies in America and in this country. American ladies are used to hard work. In every household every lady does her share of work as much as the man does, and performs her part of the household duties. There is a great difficulty in getting servants there, and she has to do cooking, sweep the rooms, or dust the furniture. Gentlemen also assist in the household duties, sometimes cleaning the boots. You will, therefore, see that what American ladies might do ours could not. I must not forget to acknowledge our indebtedness to Dr. Townsend, Mrs. Thomas, and Mr. Arthur Todd, for their kindness. The latter gentleman took us about and showed us everything of interest in Philadelphia. It was there I met our friend, Mr. Hooker's son, who also kindly showed us about. From there we travelled back to New York, and across the ocean home. I am afraid in the foregoing remarks I have only given you a slight idea of what we saw and did and the districts we have travelled over, but the pages of the *Bee Journal* shall give you fuller particulars from time to time. Wherever I took my microscope it was a source of great interest and delight, and the preparations were attentively examined. I have already told you how hospitably we were received everywhere in the States and Canada. All bee-keepers seemed pleased to meet me, not only as a brother bee-keeper, but as the representative of the bee-keepers of this country. I assured them that the compliments paid to me would be appreciated by the members of our Associations here, and I can now only repeat my expression of thanks for all the kindnesses I received on the other side of the Atlantic. Our trip was a very enjoyable one, although travelling is not so easy there as here, and one becomes wearied by the long distances. Of course, my wife could not bear the fatigue of accompanying me everywhere. Accommodation is not so good there as here; sometimes, in out-of-the-way places, we have had to sleep on the floor, owing to unwelcome bed-fellows. In conclusion, let me say I shall be happy to give you any further information in my power, if you will ask me questions on any specific points.' (Loud and protracted cheering.)*

In reply to questions by Mr. Meggy, the Rev. Mr. Clay, Mr. Garratt, and Mr Lyon, the Chairman said that Captain Hetherington's bees were Italians, or crosses between them and black bees. Large honey-producers like the Captain raised their own queens, and did not deal with queen-raisers, because where an extensive business was done queens were wanted by the dozen. It was found by experience that Italian bees or a cross between them and black bees were best suited to the American climate, at any rate in that district. Carniolan bees were being introduced in some places, but not largely. It was the practice always to select queens from the best stocks. All the sales at the show were retail. A large quantity of honey was sold by producers to the stores in the neighbourhood. The only place where he had examined foul brood was at Mr. Root's.

Mr. Lyon asked what was the average price per lb. of honey paid to producers, because he thought, considering the market price of Canadian honey in this country, a bee-keeper over there who only had 400 hives could not make a very good living.

The Chairman replied that the usual price was from fourpence to eightpence per lb. Mr. Hall had a very bad season last year, but as a rule he made a good living by bee-keeping.

In reply to the Rev. Mr. Raynor, the Chairman said that Captain Hetherington always introduced his queens by means of a cage very similar to the pipe-cover cage. The Captain said it would not pay him to practise direct introduction. He must make sure of introducing every queen successfully. He had tried the direct method, but had lost so many queens thereby that he could not afford to waste any more time by experiments. The question was governed entirely by cents and dollars, and every day was of consequence. One gentleman he (the Chairman) met who frequently tried direct introduction, and by taking the precaution to smoke the bees and the queen and thus give them all the same scent, had been successful.

In answer to Mr. Grimshaw and Mr. Garratt the Chairman said that Captain Hetherington used a different smoker to those employed here. A fire was lit in the American smoker, which sent out an immense quantity of smoke. He (the Chairman) had been present during the manipulation by Captain Hetherington. That gentleman would not allow any of his friends to be present on such occasions unless veiled. A tremendous puff of smoke was blown into the sections, which caused the bees to rush down and crate after crate was removed in that way—a work occupying only a few moments. Very few bees were killed or taken away, perhaps not more than two or three. The wood used in the smoker was maple cut out into pieces about four inches long and half an inch square. Some people, like Mr. Heddon, used moistened plane-shavings mixed with dry shavings, which combination smouldered very much and gave off a considerable amount of smoke and steam. In every apiary there was always a smoker ready at hand. He (the speaker) took the opportunity of testing Mr. Grimshaw's apifuge at Messrs. Knickerbocker & Lock's. Mr. Lock put some on his face and hands when examining a hive of savage Cyprians. One bee flew direct at his face, but did not sting, at which Mr. Lock was agreeably surprised. He (the Chairman) left some of the apifuge with several persons.

In reply to Mr. Sambels, the Chairman said that sections in America were propolised late in the season just as much as here, but early in the season the honey flow there was very rapid, and they were consequently not propolised so much. Captain Hetherington considered seventy pounds per colony a very fair yield. With regard to carrying bees away on the sections he had omitted to say that every establishment had its honey house, and the windows in these were so arranged that bees taken in could get out again. In America, however, they were not so particular about destroying a few bees as we were, so long as time was saved. They do not trouble to remove the sections as carefully as we do, and with them it is of no consequence to crush a few bees. Wintering in Canada is much easier than in the States, owing to the dryness and equable temperature. The climate of the former is colder, but less changeable than that of the States. Captain Hetherington's greatest difficulty was in wintering. He moved all his hives into cellars, but his losses during the spring had been great. He had lost as many as ninety per cent some years and could not ascertain the cause. He had a house built partly above and partly below ground, which was ventilated by a pipe running a long distance under ground, the air inside the building being warmed to the temperature of the earth. That gentleman's apiaries were in New York State and occupied a very cold region; in fact, they existed in a snow belt which extended for about fifty miles north and south. The district seemed always to be visited with a larger quantity of snow than was experienced either north or south of it for many thousands of miles. Melons would not thrive in that belt, though they came to perfection

* The above outline of Mr. Cowan's travels through the States and Canada, and his narrative of visits paid to bee-keepers, were delivered without the aid of notes, and with little previous preparation, which must be his apology for any possible omissions or misstatements.

both north and south of it. In Iowa and Illinois bees can be wintered out-of-doors.

The Rev. Mr. Raynor said he thought the meeting was deeply indebted to Mr. Cowan for the very lucid and interesting description of apiculture as carried on across the Atlantic with which he had favoured them that evening, and he (Mr. Raynor) wished to express on behalf of his brethren their heartfelt thanks to the Chairman. He was glad to know that, with the exception of pasturage, bee-keepers here were in every way equal to their co-workers in America.

The Hon. and Rev. Henry Bligh seconded the motion, which, upon the suggestion of Mr. Garratt, was formulated thus:—

'That this meeting expresses its best thanks to Mr. Cowan for his kind and lucid description of American Apiculture in the United States and Canada, and also desires to record its sense of the kindness and hospitality shown to him as the representative of British Bee-keepers by American and Canadian bee-keepers.'

Mr. Grimshaw, in supporting the resolution, said he was very glad to know that the bacillus of foul brood seen by the Chairman was exactly like that which English bee-keepers were accustomed to. It was a comfort to think that instead of having a dozen different varieties to fight there was, probably, only one kind.

Mr. Sambels also supported the resolution, saying he was glad that Mr. Cowan had convinced the Americans that English bee-keepers were not a few decades behind them. He thought after the Chairman's visit they would, perhaps, adopt some such system and organization as prevailed in this country.

The resolution having been carried, amid applause, the Chairman expressed his thanks to the members for their kindness. He said his visit to the great western Continent was quite a labour of love, and that he and Mrs. Cowan had benefited greatly by the tour, notwithstanding that the railway journeys were often very fatiguing. When at Toronto he was asked to give an opinion respecting Canadian honey, and efforts were made to induce him to commit himself on that subject, and in that connexion he was very much pressed by the persistence of interviewers. He could only confess that their clover and lime honeys were very similar to those in England. With regard to thistle honey he was rather sceptical last year, and had said he could not understand any country producing sufficient thistles to give a crop of honey; but his opinion on that point had been rudely shaken when he saw hundreds of acres of thistles. Although an Act existed against the cultivation of thistles it was not put in force. He thought his visit and the reception accorded him would have the effect of cementing the bonds of friendship between bee-keepers in all three countries. He had found that some little prejudice was felt in the States against English bee-keepers, who it was thought had treated the American honey dealers somewhat badly. However, a little explanation soon removed the grievance and secured the Americans' approval of the steps taken by the Association. He was quite sure their friends over the water would be gratified by the resolution just passed. (Cheers.)

After a short conversation between Mr. Garratt and the Chairman respecting Canadian thistles, Mr. Sambels proposed that a copy of the resolution should be sent to the *American Bee Journal*, the *Canadian Bee Journal*, and *Gleanings*, which proposition was seconded and supported by two gentlemen among the audience, and carried unanimously.

Mr. Lyon asked whether the Chairman had any practical experience of the working of the Jones-Heddon hive in America.

The Chairman said that hive was not in very general use over there, and Mr. Heddon himself was not using it very largely.

Mr. Grimshaw and Mr. Sambels referred to the peculiar and various effects caused by the smell of honey on some persons. In answer to the latter gentleman and Mr. Lyon, the Chairman said he saw no skeps in America, bee-keepers there being too advanced for any such imperfect appliances.

Mr. Alpaugh's method of fixing foundation by means of slit sections was then exhibited for inspection.

Mr. Garratt feared that the foundation as fixed might buckle, but the contrivance was commented on in favourable terms.

Mr. Godman's machine for embossing foundations was also exhibited.

Mr. Baldwin said that, although the Canadians had such vast tracts of pasturage, they did not seem to have profited much by Nature's gifts, many bee-keepers in England having produced far larger yields of honey—the Chairman himself, for instance.

The Chairman said the most he had produced from one hive was 230 lbs., but then he was a bee-keeper on a small scale compared to the Americans. Besides, they could not afford to devote the time and care to bee-management as was done in England.

Mr. Baldwin thought there was nothing to fear from American competition.

Mr. Sambels said Miss Gayton was a very successful lady bee-keeper in his county, and had produced from one hive during the past season a far larger quantity of honey than any of the American yields to which the Chairman had referred.

After a few remarks from the Rev. Mr. Raynor, the Chairman said it was not fair to select the produce of one single hive as an example of the amount of honey raised here or there; an average must always be struck. Mr. Hall, of Woodstock, has obtained 400 lbs. from a single hive, and Mr. L. C. Root as many as from 400 to 500 lbs. He (Mr. Cowan) could not say that his average was 230 or 200 lbs. A certain number of years must be considered when computing an average. Captain Hetherington did not complain of from 60 lbs. to 80 lbs. average. He (the speaker) had suggested that it would be better to reduce the number of hives, and make sure of paying more attention to the management, by which means he thought an equal, if not better, yield would be obtained.

After a few words from Messrs. Sambels, Baldwin, Hooker, and Neighbour, Mr. Lee's system of dovetailing sections was shown and explained; and a bar-frame belonging to Mr. E. J. Jones, the speciality of which was that, instead of the side and bottom bars being of one piece, they were halved. In order to insert the foundation sheet, the metal ends were to be removed, and the frames would open like a book. (Further reference to articles exhibited will be found in p. 469.)

During the remainder of the evening, the Chairman evoked much interest by exhibiting under the microscope various portions of the bee's structure, including the tongue, the semicircular comb used for cleaning the antennæ, a longitudinal section of the eye, the worker's claw and sting. He also showed some peculiarly shaped cells, which had been cut out of frames by himself in America.

USEFUL HINTS.

Weather.—The autumn weather we are now experiencing is, to our taste, simply perfection—warm, bright, bracing, dry—the day temperature much in excess of the night. Yesterday and to-day (Friday and Saturday) have been days of brilliant sunshine, without a cloud to dim their brightness, while that invigorating atmosphere, which a fine dry English autumn alone affords, prevails from day to day; while the thermo-

meter is down to freezing point at night, the mid-day temperature in our bee-houses is 84° Fahr.—weather in which almost any operation may be performed in the apiary.

Bees Breeding.—Several of our colonies are breeding far more extensively than we approve, and pollen, in pellets, as large as those seen in April and May, are rapidly conveyed to the hives during working hours. This occurs chiefly in colonies whose aged queens have been lately superseded by imported Italians—a result we have often before noticed. If the coming winter prove mild and open this late breeding may be an advantage, but, after eight or ten weeks of hard frost, we dread to forecast the condition of such colonies. Driblets of food during a late fine autumn will often cause breeding, but we are wintering entirely on natural stores, not an ounce of syrup having been supplied to our bees since the spring months.

Cages and Introduction.—In response to our offer to present queen-cages to our friends and readers, we have received numerous applications, with which it has afforded us much pleasure to comply. Will those who have received them—many of whom have desired to send value in stamps—please to accept them, their cost being a mere trifle? In future Messrs. Neighbour will keep a supply of these cages on hand. From the correspondence ensuing from our offer, we are sorry to hear of the loss of so many queens in attempts to introduce direct. Even where queens survive they are often injured by long encasement; hence our advice to the inexperienced is to avail themselves of the security offered by the cage, during the honeyless season of the year at least. With the cage we have been busily engaged in introducing queens during the last month, and have met with no loss, often leaving the queen caged in the brood-nest for three or four days from want of time to set her free, and always finding her vigorous, healthy, and improved in appearance and condition. We have also found it a good and safe method of keeping a supernumerary queen to cage her on the confines of the brood-nest of a strong colony still possessing its own queen at large. Such queens, after a week's imprisonment, have been found well nurtured, strong, and healthy. It is a curious fact that bees will feed an alien queen when protected by the cage, which, without that protection, they would instantaneously destroy. Queen introduction at so late a period is exceptional, but the fine, brilliant weather we are now enjoying is also exceptional.

Skeps *versus* Foul Brood.—Were it not for the fear of that terrible pest, foul brood, we should rest perfectly contented with the condition and prospects of our apiary, but, with the scourge all around, a dreadful nightmare oppresses us and compels the use of precautionary measures. To the expressed view that colonies in skeps are less liable to foul brood than those in frame-hives, or that the disease was not in existence before the introduction of the latter, we must demur. It is more than probable that the dire disease existed in ancient times. Virgil speaks of Aristæus having lost his bees by disease—'*amissis apibus morbo*,' and again, '*Si vero, tristi languebunt corpora morbo*,' (If, moreover, their bodies shall languish with a sad disease), &c. Varro, Pliny, and indeed all ancient writers on bees, treat of their diseases, our own Dryden having amplified the latter's statement, thus:—

'And crowds of dead that never must return
To their loved hives, in decent pomp are borne;
Their friends attend the hearse, the next relations mourn.'

Our ancient English authors treat largely, too, on the diseases of bees, and we should hesitate to affirm that foul brood has not existed in this country as long as the bees have existed. The old straw skep, without roof or cover, saturated with moisture and rotten to its core, is a meet receptacle of the spores of bacillus, and there is scarcely the shadow of a doubt that the disease has existed here from time immemorial. And the same may be said of many other diseases, which appear now and again under novel and scientific names. So far, indeed, from the fell disease following in the wake of the frame-hive, we are more inclined to think that it has followed in the wake of the old straw skep and of the *modern expert*. *Absit omen!*

Sale of Honey.—It is a very common complaint of County Associations that there is no market for their honey. We fear there is much truth in the allegation. But taking into consideration the great depression prevailing in every branch of industry, how can we expect ours to be the one exception? Again, are the County Associations doing all that lies in their power to remedy the evil? In the sale of honey very much depends upon the style in which it is 'put upon the market'—the 'get up,' as it is called. Our best dealers will purchase none but first-class honey, especially in sections: and how few of these do we see even at our shows! Very few indeed are well and evenly filled, and fewer still are worked in clean new section-boxes of snowy whiteness. More often do we find them in dingy, soiled material, propolised within and without, and the propolis left adhering. Surely there is much improvement needed in these points. Teach producers, first of all, what is meant by a really good section, and, next, teach them how to produce it and present it in proper form for the market. The same may be said of extracted honey also. Then, again, it is a great mistake to force the entire honey yield of the year upon the market at once. What should we think of the farmers if, even in these terrible times of depression, they forced the entire corn-crop of this country upon the market within three months of its ingathering? Should we not expect prices to come down? Granulation, to a great extent, may be prevented if proper means be used, just as the farmer by care and foresight can keep his corn in dry and saleable condition as long as he pleases, ready for the market whenever a favourable opportunity may offer. Try as we may, we shall never teach people to consume the entire honey crop of the year in three months, and to abstain for the remaining nine months.

Preventing Robbing.—A friend informs us that he has used carbolic powder most successfully as a preventive of robbing. It is the ordinary disinfecting powder, sold in 1*s.* tins, with perforated lids, of which a small quantity is sprinkled on the robbers when attacking. The would-be thieves, disgusted with the scent, return to their hive only to be shunned or expelled by their sisters. Generally speaking, bees which have been in contact with carbolic acid, *i.e.*, upon which has been sprinkled a little of the solution or powder, immediately desert their home and kindred, and are seen no more, perishing as outcasts shunned by all. If a little of the powder falls upon the guards, no great loss is sustained, as others will quickly supply their place, and the speedy check to raiding is of greater importance than the lives of a few bees.

With a press of most interesting matter for the pages of the present issue of the *Journal* our readers will kindly excuse the curtailment of our 'Hints.' For work to be performed, but which has *not* been performed, we beg to refer them to 'Hints' in our late issues.

ITALY.

In reviewing the result of the season which has just closed, the *Apicoltore* of Milan, whilst exhorting its readers to look forward to better things in future, points out that, generally speaking, all the hopes which had been placed upon an abundance of honey from the heather have been disappointed. It would appear, adds our Italian contemporary, that this honey-producer has this year followed the example of the acacia-tree, which

has been very prolific as regards blossom, but very sterile as regards honey. The editor concludes, however, by assuring his readers that the above circumstances will not be allowed to interfere with his hopefulness, particularly as this scarcity of honey has not been limited to Italy alone, but has been, on the contrary, very general both in Europe and in America as well, and he ventures, therefore, to express his conviction that his hopes in the future will be participated by all bee-keepers throughout the land.

Correspondence.

IN THE HUT.

'Weaving spiders, come not here;
Hence, ye long-legged spinners, hence!'

[1324.] At last we have got our bees from the moors, but our best-laid schemes have gone agley, for we had fixed on to-day for depriving them of surplus stores, and here we are, kicking our heels during an incessant steeping of rain, with nothing to do but smoke and talk bee-talk. Patience, Huttites! wait; and in good time

'The musical hounds of the fairy king
That hunt for the golden dew,

shall sally forth again. Wait till a fairer day, for it is not yet the time

'When chilling frost and nipping wind
O'er earth exultant reign,
And close within the hive confined
The Brown Bee shall remain.'

Fine days and frosty nights. The glass now drops to freezing nearly nightly, and we shall only have occasional days this month when we can open our hives. We have been driven to this delay (Oct. 15) in wintering preparations in consequence of the peculiar season on the Yorkshire moors, inasmuch as the weather broke just as the heather bloomed in full; the bees had only one week's fun, the rest of the time being what we call 'snatch days;' indeed the weather was so fickle that three weeks ago had they begun running downstairs with the contents of sections. We therefore left them later on the moors, in hopes of a change, this coming only in time to enable them to fill up and seal frames, but leaving sections unsealed. Such sections will be carefully wrapped up and put away so that we may in June get the perfection of honey—heather and hawthorn mixed; we cannot extract it to get a nice article.

Your leaders lately remind us that

'"Aphidean honey" is not strained;
It droppeth as the gentle rain from heaven
Upon the leaves beneath.' (Ugh!)

I suppose everybody takes care to put a pencil—or some other—mark on the top of each section, either at the time of putting on or taking off section crates. When this is neglected, and they get sent away by rail, wrong way up, the jar (not the honey-jar) of the journey causes leakage because of the downward pitch of the cells, or, when stored away, they bleed.

Speaking of mice in bee-hives (*vide* Mr. Dixon in recent issue) one huttite, last winter, found a dead mouse (inside a hive) which had eaten its way through combs, and in tightening up the frames it had evidently got nipped and jammed to death between two bottom bars. Our bees left this mouse severely alone; but then, we have such strange bees! The little beggars won't do any wonders for us.

What, Mr. Useful Hints, surely you do not mean to punish the many for the criticisms of the few! Perish the thought that anything at present is likely to jeopardise the regular appearance of those kernels of practice judiciously flavoured with germs of theory—Useful Hints. 'No Jottings' this week neither.

There is one thing, however, which causes us to rejoice at the close of the season, and that is, the temporary stoppage of reports from county meetings. I suppose it is only a case of 'suspended animation!' They will come round again. I have often wished, when reading the full lists of prizes at various shows, that an inspiration might come over the secretary whilst writing out his report, to 'tell us a bee-tale.'

Somebody has parodied the lines quoted by Mr. New (p. 383):—

I knew by the smoke that so gracefully curled
Above the broad brim, that a bee-man stood near,
And I said, in my heart, 'If there's peace in the world,
A bee, that is Humble, might hope for it here.'

By the time these lines are in print, we shall have had 'Welcome the coming' over, at the Conversazione, in hailing the return of our chief 'frae fo'n pairts.' I may be branded as a greedy one, but I anticipate something 'richt guid' in your columns as a result of our Editor's trip.

By the way, if some courteous correspondent will contribute to your columns a list of the bee-keepers in the McNally family—Christian names, and relationships—it would be of considerable value as a reference; there is such a lot of 'Please, sir, it wasn't me; it was the other boy,' that we ought to know whether the other is which or not.—X-Tractor.

AMONGST THE RED INDIANS.

[1325.] Very recently I paid a visit to 'Buffalo Bill.' It was not my first visit by any means; I was familiar with his show and the 'war-whoop' of his horde. I had gone carefully over the place, watched the process of 'extracting' John Bull at the switchback railway and tobogganing slide, stood and gazed on 'Liberty' and tried to imagine myself entering New York Harbour, and admired the ice palace. I had given more than a passing look at the 'arts, manufactories, and resources of the greatest and best honey-producers in the world.' I had looked amongst the canned fruits, essences, meats and lobsters; sweet and delicious (?) drinks there were without number, but I could find no *honey*. Whether the American bee-keepers lack pluck, or have given up all hopes of redeeming their character on the London market, I know not; but I must confess I was greatly surprised to find them not represented, and I had turned home with the probability of not paying the show another visit; but on this particular day having to go to town I thought I would give it one more look. In town I met the terse and logical inventor of 'Apifuge,' and a hint or two was sufficient to induce him to mount a 'bus with me for the 'Wild West.' Arriving we turned into the Indian Encampment, but stillness reigned throughout the camp. The 'Hon.' we did not wish to interview; 'Buck Taylor' was 'bossing' up and down showing off his flowing hair to the crowds of English girls that were about. Cowboys there were in abundance, but our thoughts were not centred on them. The Yankee ladies of the show were—we judge from appearances only—all 'at home,' but even 'little Sure-shot' herself had no charms for us; we wanted the real dusky article, male or female, we cared little which, but 'red-skins' we were in search of; and, for the time being at least, we were blind to all the charms of the 'whites.' We 'took stock' of the sable gentleman that roasts the 'pop-corn' and watched the humorous look in the corner of his eye at the end of each oft-repeated husky yell of 'S-o-u-u-c-h-!' It is honey-coated!' and the bland look of disappointment when he discovered it failed to make even a muscle of our faces relax. By this time the corn commenced to burst and 'pop,' and elicited from our 'darky brother' the cry 'Look! Wonderful!' but failing even then to get a response from us he turned his back on us with disdain. Now the 'X-tractor' was brought into play in the shape of a loud whisper to myself, 'Honey-coated! pshaw!

glucose?' This had the desired effect. 'The "popcorn," ladies and gentlemen, is sweetened with granulated sugar and the best American *strained* honey, you cannot do better than try it; only threepence a ball the corn and twopence a bar the candy and no glucose!'

At this moment I espied a figure mocassin-shod and enveloped in a striped blanket, holding a *tête-à-tête* in dumb show with a flash young English lady in charge of a cigar-stall. Here was our chance. So we proceeded to first get the lady to forward our project. 'Did she like honey?' 'Not much.' 'Wonder if the Indian did;' but he meanwhile had enveloped himself still closer if possible in the folds of his blanket, so that we could only get a glimpse of his eyes and a small patch of his forehead by peeping in a way amounting to rudeness. A motion from the lady caused him to look at what we wished to show him. My companion and I both placed a piece into our mouths, the lady takes a taste to encourage him, and as a reward for our audacity our dusky friend allows us to put a nice piece of section honey into his mouth from the blade of a bone knife, and we watch the result with some amount of alarm. 'Would he tomahawk and scalp us? Should we be the cause of a sensation in the evening papers? Would the coroner have to summon twelve "good men and true" to give a true verdict about us?' But nothing happened. The 'brave' stood erect, rolled the blanket around him so that we could not even see his eyes, swallowed the 'mel' and slowly relaxed his blanket again. At this juncture two more passed to the rear of us. These we also waylaid. 'Chippa-wah' No. 1 stood and looked; 'Chippa-wah' No. 2 gave a look, a most decisive grunt of disgust, and passed on. My versatile friend proceeded to treat 'Chippa-wah' No. 1 to a liberal helping; he took it into his mouth with a broad grin, wrapped himself up and proceeded to assimilate it. If ever I felt sorrow over feeding any one with sweets I did that poor Indian. Some of us old stagers know the effect of a good lump of strongly flavoured comb honey on our bronchial tubes. But how about a throat that is not hardened to the acids contained in honey? But the demeanour of the savage gave us no indication of what was passing through his mind, nor the amount of pain he was enduring. He simply stood erect and immovable, but he refused the offer of a second helping with a most decided grunt. But the first 'brave' who all this time stood looking on did take a second taste, and I judge by his demeanour rather liked it.

We next passed on to the encampment again. The first we sighted was a 'squaw;' she looked at our section and passed on 'dumb saucy.' The next was the tallest, finest 'brave' it was our fortune to come across, but our invitation made in 'dumb show' only drew from him a grunt more decided and scornful than we had yet got from any of the others. By this time a small crowd of sight-seers had gathered around us, which was above all things not likely to forward our project. At the door of one of the tents sat an Indian girl about five years firing off a toy pistol some one had given her. The cool way in which the small child placed on the percussion caps and listened to each consecutive report without a wink of amusement or animation lighting up her eye was a study. We tried to attract her to us, but never a move did she make. At last a jolly young fisherman up on an excursion drew from her a small cry of pleasure by offering her a penny. She dropped her pistol and ran to him with outstretched hand to take it, but the penalty was to be a 'kiss.' The child stood as erect and immovable as a statue while the smart young 'salt' imprinted a kiss on her cheek that was audible for some yards. The moment the 'chick' was released she ran into the tent and as quickly reappeared—*minus* the penny—to meet the sight of a biscuit being offered her by a lady. This was also taken into the tent, and no other offer being presented she sat down again intent on exhausting her box of percussion caps. As no one would yield to our charming we at length gave it up—cigarettes, money, biscuits, gew-gaws, 'bacca, anything but 'Mel,' which seemed to be unknown to and unappreciated by them, or probably is held in disrepute by them as being gathered by the white man's 'stinging-fly, the Ahmo, the bee, the honey-maker,' which always 'swarmed before him' in his appropriation of their once happy hunting grounds. I confess I turned from these fine fellows with a sigh, not because I had failed to induce them to partake of my 'sweets' so much as when I remembered in the words of *Hiawatha*:—

'The westward marches
Of the unknown, crowded nations.
All the land was full of people,
Restless, struggling, toiling, striving,
Speaking many tongues, yet feeling
But one heart-beat in their bosoms.
In the woodlands rang their axes,
Smoked their towns in all the valleys,
Over all the lakes and rivers
Rushed their great canoes of thunder.

Then a darker, drearier vision
Passed before me, vague and cloud-like;
I beheld our nations scattered,
All forgetful of my counsels,
Weakened, warring with each other;
Saw the remnants of our people
Sweeping westward, wild and woeful,
Like the cloud-rack of a tempest,
Like the withered leaves of autumn!'

AMATEUR EXPERT.

BEES AND MANURE-HEAPS.

[1326.] I am very pleased that our old friend, Mr. Grimshaw, has fallen somewhat into the views that I expressed in my letter published in the *Bee Journal* of the 6th inst. (1295); although he only gives me credit of being 'warm,' meaning—as expressed in the game of hide-and-seek—that I am only near the mark, but have not hit right upon the correct theory, and so venturing to suggest that he has 'hit the nail right upon the head.' Well, perhaps he has wrested the honours (?) from my hand. I am sure that I am perfectly willing to give in to his superior knowledge of chemistry, knowing that I am but a 'poor fist' at the best. Of course, we are not all born scientists in any one particular branch, it would be against all advancement in this world of multifold ideas and knowledge. I made the assertion (*vide* 1295), that hippuric acid $HC_9 H_8 NO_3$ is found in the urine of horses and cattle. Yet Mr. G. asserts that hippuric is the acid contained in the human excreta and uric in cattle, thus misplacing both their positions and terms. I don't say for a moment that he is wrong; but still, I remember that when a little boy I was always taught that hippopotamus, a river-horse; hippodrome, a circus for equestrian exercises; hippophagy, eating horse-flesh; hippopathology, veterinary science; hippolith, a stone found in the stomach of a horse; hippocampus, a fish with a head like a horse, &c., were, in the first syllable, derived from the Greek word *hippos*, signifying a horse; perhaps my tutors were wrong and ought not to have led me to suppose that hippuric had anything to do with horses, but yet I can hardly conceive that a very formidable work on chemistry now laying before me should be wrong as well; and yet, even this informs me that hippuric acid is found in the urine of horses in quantity, but in larger quantities in that of the cows, and uric acid $H_2 C_5 H_2 N_4 O_3$ in that of humans, but in each of these a faint trace can be found of both, that is to say, in humans a faint trace of hippuric, and *vice versâ*. But still I will give in to Mr. G. Oh, by-the-by! I find that an ordinary dictionary (Nuttall's) contains the following, 'Hippuric, obtained from the urine of horses.' But still I'll give in.

Now I'm going to ask for information from Mr. G.

I always endeavour to obtain this from some one who, I think, ought to be capable of assisting me, and so in thus soliciting I expect to be fully posted up upon the following subject, thus adding one more item to my chemical knowledge, which, as I before owned, had been sorely neglected by my mentors. In Mr. G.'s letter (1316), he tells us that 'hippuric will be secreted by all animals which have benzoic acid given them.' My question is: Upon what food can an animal be fed in order that benzoic acid may be taken into its system with same, in quantities sufficient to form hippuric acid, which is found in every manure-heap frequented by a few bees? I own that I am in a complete fog,—I don't know. The adage says, 'Where ignorance is bliss,' &c., but I really want to be wise. But stay! perhaps they feed horses, &c. in Yorkshire upon gum-benjamin, a resin flowing from the *Styrax benzoin*, a tree of Sumatra.

Following up the letter, I find an astonishing misstatement has been made in confounding nitro-benzol $C_6 H_5 (NO_2)$ or artificial essence of almonds with the benzoin products. Artificial essence of almonds is produced by the action of strong nitric acid on benzol, a liquid obtained from coal-tar, and by no means to be confounded with benzoin. Nitro-benzol cannot even be used as a flavouring ingredient on account of its rankness. It is sometimes used for scenting cheap hair-oil and soaps.

After this latter, I think I may be more than 'warm' on the subject of the cause of the visits of bees to manure-heaps, and also may be correct in my assertion as to the relative positions the two controversial acids ought to be placed in.—W. B. Webster.

NOTICES TO CORRESPONDENTS & INQUIRERS.

E. T.—1. The insects you forwarded are of the order *Diptera*—flies not bees. They, however, bear a great resemblance to bees. Their specific name is *Eristalis fossarum*. They live on the vilest garbage, and are often called 'stink flies.' 2. The sample of sugar sent is not the most suitable for dry-sugar feeding; Porto Rico is the best. This, however, should not be given till next spring.

William Johnston.—It is not desirable to disturb your bees so late in the season. Wait till next spring, and when the hive has swarmed, twenty-one days after drive and transfer to bar-frame hive.

W. K.—*Breeding Space.*—It is generally allowed by those who have experience of the various races of bees that Cyprian, Carniolan, and Italian queens are more prolific than black queens, and consequently require more breeding space, especially if natural swarms are not desired. It is not uncommon for the queens of the three former races to keep twelve standard frames well filled with brood, while, in our experience, eight or ten suffice for black queens.

J. White.—1. *Ripened Honey.*—Frames of sealed honey are ripe when removed from the hive, and may be kept free from granulation if stored in a dry, warm room or closet (see answer to 'Aps'). 2. *Age of Queens.*—It is generally recommended that a queen should not be kept after her third year, many say after her second, and a few would supplant her after her first. We have found queens most prolific in their second year. Many, again, do not supersede queens at all, but allow the bees to decide the matter for themselves. When driving a swarm, the queen may be changed by driving the swarm into a skep, removing its queen, and shaking out the bees; the new queen being placed amongst them while running in.

Aps.—*Unsealed Sections.*—As a rule it is the safest and best plan to extract the unsealed honey from unfinished sections when the honey harvest is over, as this thin unripened honey soon becomes acid, and is not suitable food either for men or bees. We have not much experience of heather honey, but believe that if the unfinished sections were placed, say, for twenty-four hours in a temperature of 90° Fahr., the honey might be extracted; when the sections, minus the greater portion of the honey, being placed over a strong colony for a few hours on a fine day would be cleaned by the bees, and might then be stored for use next season. On the other hand, if kept as they are in a dry and warm room, it is likely that the honey might not granulate, and could be used, as you propose, at spring. But granulated honey is generally cleared out of the combs at spring by strong colonies, and, to say the least, is of no advantage to the bees. In the brood-chambers honey may be considered ripe when the cells are all sealed, and may then be extracted. Until such is the case, we never extract, believing that honey artificially ripened is of inferior quality.

H. S.—1. *Moving Bees.*—Move them to the position required in one move, after they have been confined to their hive for a few weeks by winter weather. 2. *Position of Quilt when Supering.*—The quilt is to be removed entirely. 3. *Storifying.*—Remove top hive when full and extract, then replace under the then top hive, and when this is full work it in the same manner. 4. *Section Racks.*—These are much better made with sides: in fact, they are the only ones that can be tiered up.

Beeswing.—We do not recommend that the queens should be superseded at the end of the first year; our experience has been that queens have been most prolific during their second year.

W. J.—*Twichbells.*—We have had, we confess, no slight difficulty in ascertaining the meaning of your local word, 'Twichbells;' we have at last satisfied ourselves that your word is equivalent to our 'earwigs.' Now as earwigs are gifted with wings, we do not think your contrivance will keep them out of your hives. They are not very agreeable neighbours to bees, but they do them little damage. They resort to hives for warmth. Earwigs are of some service in the gardens, as they destroy multitudes of smaller insects, as thrips, aphides, &c.

Inquirer.—Crown-boards are now obsolete. The experience of bee-keepers for many years has proved some kind of quilts to be the best form of crown-cover for bar-frame hives. It is not necessary that the quilts should be of any special form or construction, matting, hair-cloth, flannel, carpet, &c., each has had its advocates; but it should be of some material through which the vapours of the hive can ascend and disperse. Besides the porosity of quilts, they are more easily removed, and therefore manipulation is facilitated. Bees would work up to the crown-boards, and the wrenching of these from the frames, and the consequent irritation of the bees, were something terrific. Bees can be more easily fed through quilts. Enamel cloth has of late found acceptance with many bee-keepers, the hive entrances being kept the same width in winter as in summer.

Llancaiach.—1. *Presence of Drones.*—The presence of drones at this time of the year would incline us to think that your hive is queenless. But before you take any proceedings, it would be desirable to assure yourself, by ocular observation, of her absence or presence. As the stock appears to be strong, we should recommend that no action be taken till the spring. 2. *Doubling.*—Excluder-zinc is not used in doubling, as it has been found to interfere with the work of the bees. In storifying the ordinary entrances would be much too small for these hives, they are therefore raised one inch in front by small wooden wedges, thus allowing the bees to go in and out on three sides of the hive, and this is not found too much in the height of the season.

*** *The extent of our report of the Quarterly Conversazione has obliged us to postpone several communications to our next issue.*

Business Directory.

HIVES AND OTHER APPLIANCES.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
Appleton, H. M., 256A Hotwell Road, Bristol.
Baker, W. B., Muskham, Newark.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
British Bee-keepers' Stores, 6 George Yard, Fenchurch St.
Burtt, E. J., Stroud Road, Gloucester.

THE BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, Cambridge Circus, W.C.

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Editorial, Notices, &c.

BEE-KEEPING AS A LIVELIHOOD.

A query from a correspondent has brought forth a few answers in respect to bee-keeping as a means of gaining a livelihood. We should have thought that a much larger correspondence upon the subject would have emanated from other bee-keepers who, although perhaps not entirely depending upon bee-keeping for a sole support, are adding very considerably to their incomes by so doing; if so, it would be of much interest that they should give their opinions and experiences, and also the amount of honey and wax yielded from a given number of hives and their increase extending over a period of several seasons. Such a statement would be of little use unless it was compiled from the results of at least thirty stocks, as a correct computation cannot be made from apiaries of a few hives; these obtaining a much larger share of attention than could possibly be given by any bee-keeper having a much larger number under his control.

It is not our purpose to advocate anyone pursuing this industry alone, without fully weighing its advantages and disadvantages over other means of gaining what we all so earnestly desire—a competence. In reviewing the four letters that have appeared we note in two instances nothing has been alluded to with regard to the flora of the district where the would-be apiarian should establish his colonies. This without doubt is one of the most important points to be considered; a difference of quite fifty per cent in the honey production in many instances with other districts will be found. We feel quite sure that this computation is within the mark. An instance in point occurs to us at the present moment where quite a novice this season obtained 400 lbs. from four colonies, these being the whole extent of his apiary. This yield no doubt was in the greatest measure owing to the unexceptional honey-yielding flora of his neighbourhood, which we have an intimate knowledge of, and not to any extraordinary expertness of the bee-keeper. Such a position as this would materially affect the honey yield and consequent fortune of the speculator.

Our American contemporary *Gleanings*, of the issue of October 1st, publishes a letter from the pen of Dr. C. C. Miller, a gentleman who now entirely depends upon honey production for a maintenance, in which the question is asked: 'Should bee-keeping be made an exclusive business, or should it be pursued in conjunction with some other business?' The following very wise observation is afterwards made by the writer: 'This question can be best answered after considering some of the pursuits that may be combined with bee-keeping.' This is very true. In how few pursuits could bee-keeping be combined? We venture to assert with a very small number. It could not be done to any very great extent with the farmers, as just at the busy time of haymaking the bees require the greatest attention. With the small fruit-grower it is the same; in fact, the aspect here would be much worse. Quoting the words of Dr. Miller: 'So far as my experience goes, the small fruit business requires the closest attention at the very time the bees demand it. As soon as spring has fairly opened there is work to be done at the bees, and so there is at strawberries, raspberries, &c. As the season advances the bees become more imperative in their demands, and so do the berries. In the height of the picking season when the eyes of the fruit-raiser must be everywhere to see that pickers are making good work, to settle disputes, to make sure that berries are promptly sent to their proper destination, and not allowed to lie over and spoil—at this time when the fruit-raiser, unless possessed of a very cool head, is about half crazy—the bees are alone enough to make him go distracted, when a dozen swarms may come out at once. In a word, the busy time of each comes at the same time, and what is wanted is something to occupy the *leisure* time of the bee-keeper.'*

We do not mean to assert that a farmer or fruit-grower could not manage, say, forty hives during the busy season; but our ideas of an apiary which shall yield a sufficiency to pay any one for their trouble and employment of capital and labour would be not less than 200 hives, and as many more as the district would support.

There are in Great Britain many men who are partially dependent upon their bees. We could name several who, in conjunction with other businesses, make bee-keeping a considerable source of income, or, as our contemporary puts it, have another business to assist bee-keeping.

* Dr. Miller's letter will be found *in extenso* on p. 485.—ED.

The production of honey, wax, and bees alone, is our basis for these arguments, excluding queen-raising as being a separate branch of the apicultural industry.

The next point that occurs to us is that of competence on the part of the apiarist. Not only must he be expert in the management of bees, but as a salesman business tact must be combined. A man may produce corn, and all he has to do is to take his samples to the nearest market-hall, when at the price fixed in this market he will have customers come to him; but with the honey-raiser this is different, he will have to make a market for his honey, and in this will depend a great measure the success of the enterprise. As Mr. Godfrey remarks in his exhaustive letter: 'Two persons standing side by side with honey exhibits of equal quality; one will sell fifty or more 1-lb. jars at 10*d.* and 1*s.* each, whilst the other would only sell a dozen or two at 8*d.* or 9*d.* each.' This is perfectly true, our experience entirely coinciding with his.

It would be giving but sorry advice to advocate a man who is capable of managing four or five colonies to invest in a hundred, as although a good bee-keeper with a few, he would most likely lose his head when surrounded with so many. Even in the practical working of an apiary, upon which so much depends, it is a very different matter to have this management subdivided to so great an extent than with perhaps a single row of stocks. We would much rather advise a gradual increase in the number of stocks kept, until the advent of twenty or thirty more into the apiary would make little or no difference to the brain-work of the honey-producer.

During this period of gradual increase a knowledge of the style of appliances and manner of working them in the most economical manner will be gained; the knowledge of such in these islands is very deficient—no doubt in this particular a 'set-off' against a further fall in the price of honey may be fairly assumed. The price expected for the honey must be less than that quoted by Mr. Godfrey. No one at the present time would pay 9*d.* per lb. for extracted honey in bulk; a computation of 6*d.* would be much nearer the mark, with 8*d.* for 1 lb. sections. An average yield of 30 lbs. per colony from 150 colonies would not be sufficient to support a family; therefore an increase of stocks must be made and a consequent increase of capital. There are many points where considerable retrenchments may be made, such as depending entirely upon one's own exertions, with an occasional help from the bee-keeper's family, which in America, where bee-keeping pays, is always obtained, the wife working as industriously in the business as the apiarist himself, winter employment in making hives, &c., for the coming season, peddling a considerable part of the productions in the winter months, when a better price can always be obtained than just after the honey season. This latter proceeding we know is considered in England by many as a little *infra dig.*, savouring too much of the costermonger style of business; yet we cannot see anything in it that would stamp any man otherwise than of being a very commendable character. A 'nest-egg' in the event of a very bad season, without doubt, is of very considerable importance, and should not be overlooked; here the gradual working into the honey-producing business will be of some advantage, as until a certain point is reached the bee-keeper has 'kept touch' with some other business which may tide him over his difficulties. There no doubt ought to be a deal of consideration given to this chance of a bad season, although with the great advancement that has been made of late years in apiculture the likelihood of a total failure of the honey-gathering has been reduced to a minimum. Our last season, if it had occurred ten years ago, would have been put down as a total failure. In our own district no rain fell for ten weeks, there was not a scrap of aftermath clover, yet we averaged forty pounds per colony in those hives which were run for honey.

There is one favourable circumstance that should not be overlooked, that is, the advantage that the British bee-keeper will have over his colonial and foreign rivals in the production of comb honey. It is almost an impossibility to send, with safety, as ordinary goods, cases of sections, on account of their fragile character. The greatest care may be taken by the packers, huge labels describing the contents may be pasted upon the cases, but still the fact remains that it is very unwise to send such long journeys, where several transhipments are bound to take place. Our colonial friends are well aware of this circumstance, consequently they will be very chary of sending any over, the effect being that the price of this commodity will always prove remunerative to the bee-keeper, although there is a very evident tendency towards a preference for extracted honey over comb by the public.

BROOD-CELL COVERS.

By Pastor Schönfeld of Tentschel.

(*Continued from page* 467.)

How is this impurity in wax, which, nobody will doubt, leaves the body of the bee in a perfectly pure state, to be accounted for? What is the origin of whole pollen-grains in newly-made wax, and of pollen-husks and fragments of pollen, in combs which have been used once for breeding? This question is easily answered, without our being obliged to have recourse to any artificial theory. It is, indeed, very natural, and we can easily understand that of the large quantity of pollen which bees carry into their hive, numerous pollen-grains are scattered about while the bees rid themselves of the pollen, or while it is pressed into the cells, while cleaning their heads, with which the pollen has been pressed into the cells, or while taking pollen from the cells for consumption, these pollen-grains becoming attached to the wax, which is kept in a soft state owing to the high temperature inside the hive, but are afterwards used up with the wax when whole cells or cell-edges are gnawed away by the bees, in order to construct cell-cappings or make use of the wax for repairs. Consequently, the greater the age of the combs, the greater also will be the quantity of pollen accumulated upon and in them. But by the pollen-grains which attach themselves to the surface of the bodies of the bees, and thus find their way into the hive, the combs become contaminated still more than by the pollen carried home by bees in small pellets

We frequently see bees returning home quite covered with pollen. Most pollen-grains carry on their surface stings or organs of attachment. As soon as such a grain comes in contact with wax, it at once becomes fixed. How little bees are able to free combs from pollen, or even from grains on the surface, is seen in each freshly-polished cell, prepared anew to receive brood, every small particle of wax being full of pollen. The fact that not even the small wax-plates from between the rings of their abdomen are free from them clearly shows how largely the body of bees itself is covered with pollen. The presence of husks and fragments of pollen-grains is also easily explained; they are, as a product of preliminary digestion, the excreta or fæces of the larvæ, which are deposited at the bottom of the cell. The larva until it becomes metamorphosed, of course, ejects no excrementitious matter, not, as people suppose, from the absence of an orifice, but because its stomach is closed by the pouch-shaped structure of its interior membrane. But as soon as the larva passes into a metamorphic state the stomach remains no longer closed, and the larva then ejects the contents of its alimentary canal together with the interior membrane of the stomach. At the bottom of every cell from which a young bee has issued, this excretion, consisting mostly of fragments of pollen, is found in such quantity that we need not be surprised that the combs in the process of being cleansed by the worker-bees are so badly contaminated with pollen-husks.

Dr. Dzierzon, therefore, is decidedly wrong in throwing doubt on the results of the investigations of Dr. Von Planta, but he is right in assuming that all cell-cappings are made of similar material, like the entire comb which carries the cells. What Dr. Von Planta observed and based his report upon is perfectly correct, but his conclusions are erroneous, as the cappings of brood-cells and honey-cells are always constructed of the same material, *i.e.*, from wax of the same quality as the comb which contains the cells. Not even in weight or thickness do cell-cappings differ so much as Dr. Dzierzon seems to think, as

10 brood-cell cappings weigh 0·50 milligrams, and
10 honey-cell „ „ 0·75 „

The weight of a brood-cell capping being therefore 0·050 milligram, and of a honey-cell capping, 0·075 milligram. — *Translated from Gravenhorst's 'Deutche Illustrierte Bienenzeitung,' August*, 1887.

FRANCE.

In connexion with the Insect Exhibition which has lately taken place in Paris, the *Apiculteur* promises to give at an early date a full report for the benefit of its readers. In the meantime, however, our contemporary expresses its regret that the bee-keepers' section was not so largely represented as it should have been, coming, as it did, at the close of a good season.

According to the above-mentioned authority, it would appear that the bee-keeping section consisted of eighty-five exhibits only, contributed by some sixty odd exhibitors, although our contemporary admits that some of the so-called lots almost constituted a small exhibition of their own. Still, at the outset a larger number of contributors was anticipated. The best represented 'Départements' were the 'Yonne' and the 'Côte-d'Or.' The prizes given away were fifty in number, a summary of which will be given in an early number.

Notts Bee-keepers' Association.—The committee are working on steadily to promote the interests of bee-keepers in the county. The bee-tent has been sent and prizes given at three shows, viz. Retford, Sutton-in-Ashfield, and Farnsfield. Bee-publications are circulated monthly to all the members, and the district secretaries have been busy giving advice and assistance to them. Messrs. Morris & Place, auctioneers, Bridlesmith Gate, Nottingham, having kindly offered the use of their auction mart to the committee it is intended to hold a honey fair there on Friday and Saturday, December 16 and 17. At this fair the silver and bronze medals and certificate of the British Bee-keepers' Association (with which the N. B. A. is affiliated) will be offered for competition. Full particulars will be advertised in due course. One of the aims of the Association is to introduce the best form of hive to bee-keepers, and to attain this hives are drawn for at the annual meeting. For the drawing next January several manufacturers and others have promised hives and appliances. Some districts of the county are without secretaries, and the committee are anxious to get ladies or gentlemen to take the posts before the end of the year, so that their names may be printed in the annual report. Lectures will be given on bee-keeping throughout the county during the winter whenever desired, application be made to the hon. secretary, Mr. F. H. K. Fisher, Farnsfield, Southwell.

How Beeswax is Made by the Bees.—It is no mere extraneous substance which needs only to be collected for use; it is a bit of individual organic home manufacture. If you examine the under surface of a cell-building worker you will find beneath the abdomen four pairs of white plates projecting from as many pockets in the incasing rings of this part of the body. These are the wax-plates made from the life-blood of the worker. Examine now with a lens one of the hinder legs. You will find that the stoutest joints are very square-shouldered at the hinge, and that the hinge is well over to one side, so that the shoulders form a pair of jaws, which open when the limb is bent and close when it is straightened. The upper jaw has a row of spines which bite on a plate on the lower jaw. With this apparatus, piercing it with these spines, the worker withdraws a wax-plate from its pocket, transfers it to the front legs, and thence to the mouth, where it is laboriously masticated with a salivary secretion. Unless it undergoes this process it lacks the ductility requisite for cell-making.—*Murray's Magazine.*

Uses of Honey in India.—Honey of fair quality is obtainable in most parts of India. Though not possessed of any marked medicinal proportions, it is always advisable to keep some in store, as it forms an agreeable sweetening ingredient for mixtures, is a good article in which to administer powders for children, and is one of the best substances in making pills, &c. Should it be dirty and impure, it should be 'clarified' by melting in a water bath, and straining through cloth.—A mixture of honey and distilled vinegar, or lime-juice, in equal parts, melted together by gentle heat, is an excellent adjunct to cough mixtures, and in the coughs of childhood. Diluted with an equal quantity of water, and with or without a few drops of paregoric, it forms a pleasant and useful mixture which children will readily take when they will not swallow other more nauseous medicines.—An excellent stimulant application termed *Ceromel*, for indolent and other ulcerations, is formed by melting together, with the aid of gentle heat, 1 ounce of yellow wax, and 4 ounces of clarified honey and straining. It is admirably adapted for use in hot climates, where animal fats, the basis of so many ointments, soon become rancid and unfit for medicinal use.

Rutherglen Horticultural and Apiarian Society.—This Society has recently presented Mr. Ebenezer McNally with a handsome marble timepiece and marble ornaments as a recognition of his valuable services during the past three years. Mr. McNally has taken a prominent part in introducing bee-culture into this locality, and the results have been of the most satisfactory nature. The 'hobby' is now getting very popular, and it is evident, in years to come, the name 'McNally' will be long remembered in connexion with this local industry. This is certainly encouragement to others who may be labouring in the same direction.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts (see 2nd page of Advertisements).*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

GRANULATED HONEY.

[1327.] The time, I think, has arrived when something should be said in favour of granulated honey. By this I mean extracted or run honey not comb honey. There appears to be a widespread opinion that a jar of honey in its granulated state is not pure, that it is mixed with flour or some such ingredient, or that it is old honey. Most of us bee-keepers know that this season especially, being free from rain, and consequently a dry atmosphere, honey when extracted quickly set into a solid block in a few days. This was the case in my own apiary, whether the honey was taken from fruit or heather blossom; it set in less than eight days, and from the clover in less than fourteen days. Before proceeding further allow me, Mr. Editor, to draw your attention to the reply you favoured your correspondent 'S. White,' *B. B. Journal* of October 13th ult. page 457. You state there, 'The reason of your honey becoming candied was extracting it before it was ripe.' I thought at the time it was an error of the printer, and have been looking for you to contradict it ever since. This remark placed beside your specimen honey label, which you recommend in your *Guide-Book*, page 82, somehow don't agree. I am of opinion that every jar of honey put into the market should bear a label of this kind, which I greatly admire. Kindly allow me then to venture giving my opinion that honey must be ripe and extracted from sealed combs or it will not granulate. In frequenting the most of our leading honey shows the thought has often occurred to me, viz., how does it come that judges, when giving an award in a class for extracted honey, and there happens to be a sample of granulated honey competing with a sample of liquid honey, that almost invariably the latter takes the first place? The first time I saw the tables turned in this respect was at the Caledonian Society's Show at Edinburgh, in 1884, when Messrs. Raitt and Neighbour were the judges; and in the class for twelve jars extracted honey, the second and third prizes were awarded to the granulated samples, against perhaps fifteen in the liquid state. When I have been asked to judge at any of our honey shows, I have always placed granulated honey on equal footing with the liquid, for the simple reason that it is as difficult to produce a perfect sample of the one as the other. Suppose then briefly that we have two samples of honey, the one liquid, the other granulated (I don't like the word candied) to pass judgment on, and we take the six points usually taken by our competent judges to guide us in deciding, viz., flavour, colour, condition, uniformity, aroma, and get-up or form shown, for to guide us, I fail to see where the granulated sample should lose one point, except perhaps in colour; and I doubt very much if it should lose there, while as to condition or consistency it should more than hold its own against the liquid sample, because it ought to be already tested. I have more than once secured a first-prize jar of liquid honey, and kept it beside me to see in what form it would granulate. I have seen it after it had become set to be large-grained, a sure sign of inferior quality, and several times it remained liquid. I maintain then that we bee-keepers should do all in our power to uphold the granulated against the liquid honey when all other points are equal.

Honey in its granulated state will keep for a long period of time, it is the best to send by rail or otherwise, and, so far as I have proved, is the most marketable. It is also an easier matter to transmute granulated honey into its liquid form than *vice versâ*. One firm which has bought nearly 1000 jars extracted honey from me this year writes that they want it all granulated, as in the liquid form it is of no use to them.—WILLIAM MCNALLY, *Glenluce, Scotland.*

[The circumstances of S. White's honey were peculiar. Without our correspondent seeing his queries it would be impossible to form a correct judgment of the reply. The specimen honey-label refers to the *purity* of honey as regards its freedom from adulteration with glucose, and not to its *consistency* (*vide* context), and of this purity granulation is a proof. As a rule well-ripened honey will granulate as quickly as unripe, or, in many cases, more quickly; but granulation depends more upon the pasturage from which the honey is derived than upon its consistency. For instance, in our own apiary a few weeks ago, unsealed honey of the least possible density, when extracted from unfinished sections, granulated sooner than the most dense we ever saw, which had been extracted from well-ripened sealed comb. It is a difficult matter to *compare* and judge granulated honey—when shown in the same class—with liquid. We very much prefer the granulated, but there ought to be classes for both.—ED.]

THE HONEY FLOW.—OVERSTOCKING.

[1328.] Many inquire how they are to know when honey is coming in. Examination of the hive will of course show every vacant cell being more or less occupied with the thin, newly-gathered nectar. The bees, too, come in with distended bodies, falling heavily upon the flight-board. Sometimes the aroma of the incoming stores is distinctly noticeable, more particularly at evening, when many bees are ventilating at the entrance, and a perfect roar is heard throughout the apiary. Apart from this, the advanced apiarist has an instinctive feeling that honey is, or is not, being gathered. The state of the atmosphere and his knowledge of surrounding crops tell him at once what to expect.

The temperature may range anywhere from 70° to 90° in the shade, but if it continue too hot and dry for more than ten or fourteen days, the amount of honey brought in will decrease daily, unless there happens to be a succession of heavy ground crops coming along, when, the earth being shaded, moisture is still retained. A shower once in a while is beneficial, but frequent rainfalls destroy all chance of a good honey-flow, as such induce also a low temperature. Even with fair weather it sometimes happens that the temperature rules too low for the secretion of nectar; but usually, if none is stored during a fine season, it implies either that the district is poor in honey plants or there are too many colonies in one place. It is sometimes stated that honey is secreted on a larger scale by plants during thundery weather, but I have found it come in just as freely during steady fair weather, when there was no sign of thunder for weeks together; and the latter condition is certainly to be preferred to the other, as the atmosphere is often cold and unsettled after thunder.

The question of overstocking is one that has received considerable attention, though nothing satisfactory has been arrived at in regard to this matter. It may safely be said, however, that in any fairly good district one hundred colonies will each put out as much surplus as one only. But with a large number there are

greater risks, and the whole cannot receive the same attention individually that would be given to a few. It will generally be found that it is not the district that is at fault, but rather that our stocks are not always ready when the first or only glut of the season occurs. Honey is seldom secreted so abundantly as when everything is bursting into new life, but it so happens at that early date it is often difficult to get the bees strong enough to do more than provide for the expanding brood-nest. When bees can be so wintered that they will come out stronger in spring than when they settled down for winter, we shall hear little more about overstocking. That this desideratum will shortly be an accomplished fact I am fully persuaded, and hope on a future occasion to give evidence to that effect.—SAMUEL SIMMINS.

'IN THE HUT.'

[1329.] In reading over the article of last week, the 27th ult., with above heading in *B. B. J.* I see 'X-Tractor' is very anxious to have a list of the bee-keepers in the McNally family. I have no objection in the least to furnish him with a list of them with their 'Christian names and relationships' provided he will kindly say what he wants a list of the names for. 'X-Tractor' should bear in mind that when he wants a favour of this kind through the columns of your paper it is as little as he can do to affix his signature to the request. It looks very singular when any one is asking a favour if he is afraid to disclose his name. This shooting 'from-behind-the-hedge style of business' ought to be avoided by every one pretending to write to any public paper. By way of consoling 'X-Tractor' a little, if he will *extract* all the articles that have been contributed to your paper from time to time by the McNally family he will see that each one has got his Christian name and surname—but not relationship—affixed thereto. If 'X-Tractor' would take my advice, and like the bee hibernate in his hut during the winter months, and not, dog-like, keep snarling from the manger against persons better informed and more practically conversant with a subject in writing of which they are not afraid to append their names. Perhaps with reviving spring he may be able also 'to tell a bee-tale,' which with his undoubted (?) ability and smatterings of Shakspearian lore will be a treat to your readers. By the way, for the guidance of 'X-Tractor,' I may say the McNally family are a dangerous lot to tackle; their name is Legion, and they are all bee-keepers.—WILLIAM MCNALLY, *Glenluce, Scotland.*

[We have received a letter much to the same effect as above from Mr. J. D. McNally.—ED.]

NORTH-EAST OF IRELAND BEE-KEEPERS' ASSOCIATION.

[1330.] I have just read Messrs. McHenry and Cunningham's letters in your issue of 20th October, anent my letter which appeared in issue of 22nd September. I am sorry, in one respect, and glad in another, for bringing this Association into such prominence in the pages of the *B. B. J.* for irregularities. When I wrote the letter, which Mr. McHenry characterises as 'imaginary,' it was not with any selfish motive on my part; but for the common good of all concerned, and, if possible, to assist in putting matters right for another year.

Mr. McHenry must have a poor memory, or perhaps it is 'imaginary,' when he says, Mr. McNally's brother had the use of a 'proof schedule bearing the numbers, names, and character, of entries from each exhibitor, to check over his entries.' Allow me here to state, there was only the one McNally present, and that person the writer, who had entire charge, with the assistance of the Rev. J. B. Robertson, of placing the exhibits of W. and J. D. McNally; and, further, Mr. Wm. McNally did not arrive in Belfast until the judging was over. I think Mr. McHenry will admit this statement is not 'imaginary,' but correct. Coming now to the main point at issue, on the show day, when I called to arrange my exhibit, I asked Mr. McHenry for a schedule, and I could not be supplied with any other but the one I have referred to; and I must demur to the statement that in receiving said schedule I was privileged in any way, because other exhibitors had the use of this schedule as well as myself, there being nothing else to give them. I do not for a moment insinuate that I received any injustice from the hands of Messrs. McHenry and Cunningham more than any other competitor; and it would be wrong on my part to wilfully bring any discredit on the Hon. Secretary and Treasurer of this highly-respected Association, for their kindness and hospitality to all exhibitors, and especially to those who happened not to belong to the 'Green Isle,' was everything that could be desired or looked for. At the same time, those gentlemen will admit the fact that great dissatisfaction existed at the result of awards in the 'honey classes,' and particularly so in the 'run-honey.' And it was then some competitors pointed out to me that the printed names on the schedules had something to do with the awards not giving satisfaction; but I am perfectly satisfied now, after reading Mr. McHenry's letter, that the judges were not biassed in giving their decision, and I am not to be considered writing simply for writing sake, nor smarting under the sting of defeat. The printed 'rule' that all honey 'was to be shown as taken from the bees' was ignored by many in the 1-lb. section classes, and I pointed this out to the Hon. Secretary before the judges came to make the awards; but despite the fact of doing so the second prize went to a lot staged in a glass section-case, which certainly gave it an advantage over the other competitors, who acted according to the rule, and, in my opinion, should have been disqualified.

I trust this will settle the discussion, and that I shall have the honour of meeting and receiving a cordial shake of friends McHenry's and Cunningham's hands at their next annual show.—JOHN D. MCNALLY, *Springburn, Glasgow, October 24th.*

FOUL BROOD.

[1331.] The discussion on foul brood in the pages of the *B. B. J.*, still goes on, but instead of improving the tendency is, to make confusion worse confounded. It may be a bold assertion, but it is nevertheless true, that the 'Man of Kent' is the only one that has written anything sensible on the subject, although ignorant parties have attempted to sneer at his remarks.

Mr. Ward has stuck to no particular line of action, giving phenol, salicylic acid, changing queens and comb all at one time, so that it was difficult to know what was the cause of cure or failure; and I am afraid by his recipe he wants to lead bee-keepers into a trap, that I, and possibly he, has been led into.

It is now generally admitted that the Cheshire cure is too strong to give even in small doses, and yet he advises the spraying of all the combs with it at one time. Now what would be the result if the poor bees are forced to occupy these combs? The half of them would be killed and the brood likewise *literally roasted*, it would be a job to get rid of the dead ones as he advises; and would the combs be cured? No, nor never will be! And it is in them that the disease is, and not in the bees and queen, as they try to make believe. Bees as they become affected with the disease leave the hive, and the queen would do the same.

But in all my experience I have never seen a queen affected, and I have had them bred and been three years

in rotten hives, and yet when changed into clean hives, either by swarming or shaking out and starving a day or two, they were all right. I have at present ten queens that were bred into foul hives, and I know of many more, and there is not a foul cell in them at the present day.

If bee-keepers wish to get rid of this foul disease, they must resort to the old plan of swarming, and starving; and phenol, if used in small quantities, will be found of great assistance, as it will check the disease and keep it from spreading in the combs, where it undoubtedly is, and the sooner bee-keepers take that view of it the better will it be for bee-keeping.—JAS. SADDLER, *Hon. Sec. Forfar Bee-keepers' Society.*

UNITING AND FIGHTING.

[1332.] Though amateurs cannot instruct, they can communicate information which, in an indirect manner, may be of small, if not of large, benefit to their superiors, and a consideration of this truism induces me to seek admission into the pages of the *Bee Journal* once more, with a further relation of my experiences in apiarian labours.

Since my successful operations as recorded in a recent issue of the *Journal*, I obtained permission to drive a colony of skep-dwellers, receiving the creatures as remuneration for my labour. As the *modus operandi* had been neither seen nor heard of, I became an object of special interest for a time. So successful was my work that only three bees were left in the hive. I was most courteously thanked, and asked to perform on another hive: and the third evening following I again had the gratification of performing the life-preserving process, with the like good result. As I had not another empty hive, the interval between the two operations was so short, and I had repeatedly read accounts of your correspondents having united two and more stocks, I dropped the second lot into the hive which contained those I brought home three evenings previously, first putting in another bar-frame of honey, and taking out four frames, thus leaving an unoccupied one in the middle of the hive, and between two colonies. Before going to bed I heard what I supposed to be the *war-cry*, and surely enough the fratricidal war had raged all night; they had fought like niggers, and at dawn of the morn, lo! the floor was strewn with the dead, while a heap of corpses had been deposited on the ground in front of the alighting-board.

What is the lesson I am to learn from this untoward incident? Am I to believe that the bees belonging to this part of the country are less disposed to become Socialists than are those that inhabit the more northern part, or was the non-success a result from any blunder on my part? Teach me, Mr. Editor, pray. You have as a pupil—AN AGED AMATEUR.

[We have frequently advised that each lot of bees should be deprived of their hives, combs, and brood, and when thus separated thrown together and thoroughly mixed, then run into the hive,—no fighting will take place. If it is required to unite a driven lot to a stock, the above can be done; or both lots scented, and the driven ones run into the hive containing the stock. Your first lot of bees after three days were equivalent to—a stock.—ED.]

A CHEAP HIVE.

[1333.] In 1293 your correspondent says he disapproves of home-made hives in general. So do I. But I will give him an idea of mine, and see what he thinks of it. Being nothing but an ordinary gardener, I am not an expert in making hives or in explaining them. My hives are all made of 1-in. wood, bought new for the purpose, not currant or pine-apple boxes. The boxes are all made one size, so as any storey fits the floor-board; and by having extra roofs and floor-boards, they can be all turned into stock-hives. They are not standard size, but 15 in. long by 14 in. wide, 10½ in. deep, all inside measurement: board 1 in. thick 9½ in. deep inside—this for frames to rest on, making them 1 ft. in width and 9½ in. deep: and roof or quilt over frames to come level of the outer boards. I put strips 4 in. wide and ½ in. thick on the bottom of each box, which covers the joints or clips the floor-board. I can make one, two, or three of these storeys. There is a span roof to fit, the ends hanging over the entrance and behind, throwing the wet off on both sides.

My frames are 11 in. by 9 in. deep, top bar 12½ in., giving ½ in. all round, which I like, as the bees fill them quite full all round and they extract better. So you see each box holds ten frames. I generally use two storeys in summer, one in winter. My floor-boards are fitted on legs, the entrance made in the board, and alighting-board attached. The material for one of these double-storeyed hives costs about 4s., including paint and nails, and when properly put together will last a man's life-time if kept painted. I put the second storey on two of these hives the last week in June, and in sixteen days I took 55 lbs. of honey from the top storey alone; one black bees, the other Ligurian. It takes 24 ft. of board, 2 lbs. of paint, 1 lb. of nails (3 in.), for a double-storeyed hive. I never plane anything except frames, as the rough wood holds more paint without blistering. I hope 'Woodleigh' will not despise my hives, but suggest some beneficial alteration. I think there are many that would use bar-frame hives if they had a little instruction in making that cannot afford to buy them, and would get more interested in the busy bee.—O. WILL, *Clifton, Ashbourne.*

BEES INJURING ROSES.—BEES BUILDING DRONE-COMB.

[1334.] The very kindly reception given me by 'Amateur Expert' and 'Mr. Boyes' makes me feel at liberty to come again. The matter of bees injuring roses has been slightly discussed in the *B.B.J.* I have some eighty varieties of roses which I enjoy much, but this fall the bees have spoilt my pleasure by pulling over the petals, so that scarcely a bud can be found of any value, unless covered with mosquito-netting. The very dry season, I think, together with scarcity of stores in the hive has made them unusually bad.

Mr. Hans Ersler (1281) thinks bees will build drone-comb on worker foundation only when the foundation is bad. While it may be true that he has had such experience, it is equally true that I have had drone-comb built on the very best foundation, made by C. Dadant & Son, than whom I doubt if there are any better manufacturers, and the cells were also of the right size, five to the inch. As to whether bees build drone-comb with honey-storing or drone-rearing in view I am not prepared to say. I have seen it stated that if bees are fed bountifully in the fall, and obliged to build comb in which to store it, they will invariably build, at that season of the year, worker-comb. If this be true (and the experiment could be easily tried) it is, so far, proof that bees build worker-comb as store-combs. For some years my hives have contained little drone-comb, and what little there is is not used as store-comb until late in the season, but kept for brood only, and if a hole in a comb is built full by the bees, it is almost invariably filled with drone-comb, which I have never seen used as store-comb until *after* it has been used for brood. This gives some ground, at least, for the belief that when bees are well supplied with worker-comb, any additional drone-comb built by them is built with drone-rearing in view.

Another item just now occurs to me. My sections are usually *filled* with worker foundation. If at any time a starter fills only a part of a section, the bees, I think, always fill the vacancy with drone-comb, but the queen not having ready access to lay in this drone-comb, I am

apt to find it empty, although well built out, while the worker part is promptly filled with honey. This looks as if the bees were building and holding this drone-comb for the use of the queeu rather than as store comb.—C. C. MILLER, *Marengo, McHenry Co., Ill.*

LADY-BIRDS.

[1335.] Some time ago I sent you an extract from the game-book of a sportsman in Switzerland. I now give you the following, anent lady-birds, from the same:—'On the 29th of December, 1820, after ascending a mountain 5000 feet in pursuit of the chamois, I discovered a large block of crystal in a bed of granite. On dislodging it, there were concealed behind it upwards of two hundred of the small insects commonly called lady-birds—by sportsmen, lady-cow. I carried some home with me; the heat of my pocket revived them. How did this feeble insect attain so great an elevation, and how did it penetrate the rock? And why, for its retreat, did it not rather choose the comparatively mild temperature of the valley? At Glis, Switzerland.'—J. LAWSON SISSON.

MY YEAR'S WORK.

[1336.] Some of your readers will remember that some time ago I promised to tell them how I got on with regard to produce of honey. It may be that some will be somewhat surprised not to see larger returns, but it will not be the case with those who are acquainted with the district for producing honey. As there is but very little white clover round about here, and it is a very rare thing to see any seeds grown, I mean such as turnips, cabbage, parsnips, radishes, &c., such as may be fonnd in many other districts, so the bees have to depend very largely upon what is provided for them; and I find nothing so well suited for this purpose, as I have said before, as borage and Nepeta mussini, as both these plants continued to give abundance of bloom up to the 12th ult., when Mr. Sharp Frost came and sent all the borage to its mother earth. But the Nepeta mussini still continues to bloom, and the bees visit it whenever the weather permits them to fly. I am sure, Mr. Editor, yourself and many others will be pleased to hear that I have sent large nnmbers of the latter very favourite bee-plant to many parts of England, Scotland, and Ireland. But I must ask our friends not to send for any more plants at present, as I have but very few left, and they are rather weak, and which I should not like to send out at this late period of the year; but if all is well I will in the spring of next year strike other large quantities, and when ready communicate the same to our bee-keeping friends through the columns of the *B. B. J.* Now for the produce of honey, &c., for the present year. I started in the spring with seven stocks. I think it best to call them by numbers, giving each number and its prodnce separately:—

No. of Hive.	No. of One pound sections.	lbs. of extracted honey.	Partly filled combs in store.	Swarms.	No. of frames crowded on for the winter.	Total lbs. of honey.
1	83 lbs.	18 lbs.	6	1	8	101 lbs.
2	50 ,,	39 ,,	8	1	9	89 ,,
3	46 ,,	51 ,,	8	1	11	97 ,,
4	38 ,,	45 ,,	6	1	10	83 ,,
5	18 ,,	48 ,,	7	1	8	66 ,,
6	17 ,,	36 ,,	4	1	8	53 ,,
7	29 ,,	48 ,,	8	1	9	77 ,,
	281 lbs.	285 lbs.	47	7	63	566 lbs.

No. 1 Swarm is wintered on 7 frames; 2 on 6; 3 on 6; 4 on 7; 5 on 8; 6 on 8; 7 on 8.

Now I must confess that the above figures give me great satisfaction, considering the district being, what I may say, not a good one for producing honey; and if those of our friends who are similarly situated, and have the land to spare, and time to cultivate some borage and Nepeta mussini, they would greatly improve their prospects, and the quality of their honey would, I am sure, give them great satisfaction. I am sorry to say that one of my applicants for Nepeta mussini plants letter got mislaid, and only came to light last week, so he was a long time before he received the plants; but I am glad to say that I have received acknowledgment from him for the receipt of the plants; should there be any similar case, I shall be very much obliged if the parties will communicate with me, and they shall have my best attention.

Now, Mr. Editor, will you kindly answer one question, I am sorry to trouble you, but as one of our bee-keeping friends appears to be somewhat in a fog, your answer to my question might clear him of the mist. He tells me in his letter that he understood me to say, through the columns of the *B. B. Journal*, that I would send out one dozen of Nepeta mussini plants to any address free. I most respectfully ask you, sir, did you at any time understand me to say so? A reply at the bottom of this letter in *B. B. Journal* will much oblige.—C. H. W., *Aylesford, Maidstone.*

[Your first communication regarding Nepeta mussini appeared in our number for May 26, in which you say that you would be pleased to send a few cuttings of the plants provided a stamped and directed envelope were forwarded. In number for September 1 you inserted an advertisement, which informed the public that you were prepared to send out well-rooted and strong plants at 1*s.* per dozen, postage extra.—ED.]

BEE-KEEPING WITH OTHER PURSUITS.

[1337.] Should bee-keeping be made an exclusive business, or should it be pursued in conjunction with some other business? This question can be best answered after considering some of the pursuits that may be combined with bee-keeping. I am competent to speak of only a few; and if it seems really desirable that there shall be a combination perhaps others may be called out. Perhaps I may arouse Mr. G. M. Doolittle by saying that I think he has made one of the worst combinations possible in combining bee-keeping with small-fruit raising. I think there is a somewhat general impression that bee-keeping and raising small fruits go nicely together. There is this much to say in favour of it—that the man with the right taste for bee-keeping is apt to have the right taste for a fruit-raiser; and if successful at either he would be successful at the other if he should turn his attention to it.

But a business to be combined with bee-keeping should be one that would require the attention of the bee-keeper mainly at a time when his bees require no care. So far as my experience goes, the small-fruit business requires the closest attention at the very time the bees demand it. As soon as spring has fairly opened there is work to be done at the bees, and so there is at strawberries, raspberries, &c. As the season advances the bees become more imperative in their demands and so do the berries. In the height of the picking season, when the eyes of the fruit-raiser must he everywhere to see that pickers are making good work, to settle disputes, to make sure that berries are promptly sent to their proper destination, and not allowed to lie over and spoil—at this time, when the fruit-raiser, unless possessed of a very cool head, is abont half crazy, the bees alone are enough to make him go distracted when a dozen swarms may come out at a time. In a word, the busy time for each comes at the same time; and what is wanted is something to occupy the *leisure* time of the bee-keeper.

Teaching school, I think, comes nearer to it, for the

busy time with bees comes in the summer vacation, and one with sufficient strength and the right taste might take care of quite a number of colonies without interfering with school duties. I think, however, he would in time decide as I did to give up one or the other.

Of course, there may be many special departments in which different individuals may have developed special taste and ability, where a somewhat successful combination might be made. For instance, the teacher of the old-fashioned singing-school (now unfortunately out of vogue) could take care of bees without interfering with his 'schools,' held only on the long evenings.

But what we are after is something that may be done by almost any one with the requisite qualifications to be a good bee-keeper. I think I have heard poultry-keeping spoken of in connexion with bee-keeping. That, again, comes too much like berry-raising. When work begins to press with the bees old Biddy will be wanting to sit, and perhaps two or three hens will be sitting on one nest persistently changing from where you want them, till you feel like shutting your teeth together hard and saying, 'What does make you act so when I haven't time to fuss with you? I should just like to wring your necks for you.' Yet after all this is said there remains the fact that, in at least two instances, periodicals have been published having for their specialities bee-keeping and poultry-raising. Why this, unless the two pursuits were supposed to have some special adaptation to each other?

To tell the truth, if a young man to-day were to write me, 'I have at least ordinary ability as a bee-keeper, and have decided that I must have some other pursuit to connect with bee-keeping, what shall it be?' with my present knowledge I should reply 'Keep poultry.' But I would not have any hens sitting in swarming time, nor, indeed, with flocks of little chicks wandering about trying to lose themselves in the wet grass. I have studied some little about it and taken some observations, and I think the whole business of poultry-raising might be done almost entirely when bees require little attention.

Mind you, I do not say it is best to combine at all, but if combining is done the merits of poultry-keeping deserve consideration.—C. C. MILLER, *Marengo, Ills.* (*American Gleanings.*)

HONEY AS MEDICINE.

[1338.] *The Herald of Health* is high medical sanction. In answer to a question, 'Is honey wholesome?' it says 'Yes; used in moderation it is.' It then adds: 'A German teacher has lately written a work on the subject of honey and its healing properties.' While he may over-estimate its value, what he says is interesting. We quote: 'A strong influence for publishing this book was the fact that I, a sufferer from hemorrhages, already given up to despair, and at the verge of the grave, was saved by the wonderful curative powers of honey; and now, thank God, I am freed, not only from weakness of my lungs, but rejoice in the possession of perfect health. At my first attack, upwards of thirty years ago, powders and tea were ordered for me, which benefited me but little. I then placed but little confidence in honey which I had used occasionally, but in small quantities. Judging from my present knowledge, I believe that the honey was the only remedy that was doing me any good, and it is this that I have to thank for the gradual but sure restoration of my health.

'As my disease increased I began to use cod-liver oil, which weakened and injured my stomach so that I could hardly digest any more, and my condition became worse and worse. Again I returned to honey, when my sufferings gradually began to decrease and disappear. Besides the use of honey I took pains to preserve my breast and lungs from injury, which in my trying situation as public teacher was almost impossible. My disease being caused by my constant teaching during so many years, I gave up my profession, and honey was my only medicine, whereby I, by the simplest, safest, quickest, and pleasantest manner (for I was fond of honey) relieved the disease in my throat; and out of thankfulness I now write this book for the use and benefit of many, especially for the use of those suffering from diseases of the throat and lungs.'

This German teacher is none other than Kail Gatter, from whom we quote still farther on the same subject. He says: 'In medicine, and especially in the healing of wounds, was honey, already in early times, used as a universal remedy, it yet constitutes the principal ingredient of many medical preparations, is used, with the best results, in many internal and external diseases, serves as a means for taking powders, for the preparation of salves, and the sweetening of medicine.

'Honey modifies, promotes festering, causes gentle purging, divides and dissolves, warms, nourishes, stops pains, strengthens the tone of the stomach, carries away all superfluous moisture, and animates and strengthens the breast, nerves, and lungs. Honey is therefore to be used when suffering with a cough, hoarseness, stoppage of the lungs, shortness of breath, and especially, with the best results, in all affections of the chest.

'Many persons, afflicted with various species of consumption, thank the use of good honey, either for the entire restoration to health, or for the mitigation of their often painful condition of mind and body.

'Honey is also an excellent remedy for the occasional inactivity of the abdominal organs, and a means of strengthening weak nerves. For severe coughing, barley water mixed with honey and the juice of honey drank warm, is a pleasant relief. It appeases and mitigates fevers, and owing to its taste and its soothing qualities, it is used as a gargle.

'Honey can also be used with advantage in asthma, in constipation, in sore throat; promotes perspiration, lessens phlegm, and is very healing to the chest sore from coughing.

'With old persons, the use of honey is very useful, since it produces warmth and a certain activity of the skin. For persons leading a sedentary life, and suffering from costiveness, and especially from piles, pure unadulterated honey, either mixed in their drink, used alone, or on bread, is the best and healthiest means of relief.

'Honey has also great value as a medicine for children, and is readily partaken of by them as a choice, dainty dish. It is especially useful to children afflicted with scrofula or rickets. In difficult teething rub the gums with a mixture of honey and emulsion of quinces. For the removing of worms honey has often been beneficially used, and it is often used in diseases of the mouth and throat. Honey mixed with flour, and spread on linen or leather, is a simple remedy for bringing to head or maturity, boils, &c. Also, honey mixed with flour or fried onions, serves an excellent purpose as a covering for any hard swelling, or callosity, or abscess, and often for ulcers it is mixed with turpentine, tar, and tincture of myrrh. A plaster made of unslacked lime and honey has sometimes relieved the most obstinate sciatica. If good honey is applied to inflamed wounds or boils, it lessens the drawing, quiets the pain, and produces a good festering or suppuration, undoubtedly for all wounds.'—T. B. (*Farmer and Dairyman.*)

TOM-TITS, WASPS, &c.

[1339.] *Tom-tits.*—Will some bee-keeper inform me of some method of destroying these bee-pests? I find them very destructive just now. I have been shooting them for the last month, but find they still come more numerous than ever, which reminds me of an old adage, 'that to kill one, half-a-dozen come to the funeral.' They

require some one to be always about with a gun, which (at the present price of honey) does not pay; and then no one is scarcely safe unless he has a license to carry a gun. I have heard sundry rumours afloat, coming from a farmer the other side of the hedge, wondering if I have a license to carry a gun. I do not know whether I am exempt or not on the same ground as farmers. Would some one kindly inform me? I do not use it for any other purpose, or go off the premises of the apiary. Some farmers are dreadfully nasty and jealous of their privilege.

Wasps are all gone to their winter quarters, and it is to be devoutly hoped that they will never see daylight again, except it is for the especial benefit of our *waspy friend's own waspy apiary*, where I hope he will keep them within his own limits under his immediate control; he is quite welcome to a monopoly, and enjoy all the benefit he can make of his wasp apiary. I am sure that I do not covet, or desire any of those *pets* of his.

(1303.) I am personally greatly obliged to Mr. Rogers for answering so many of my questions, but he has failed to show how he manages to fill a hive of forty frames with bees and honey by the 'hundredweight.' Mr. R. winters his bees on 'ten frames,' this is one quarter of the original summer hive; this, I presume, would be done at the latest by the middle or end of September. This I can quite understand, but my query is, How many frames will they cover now, say the 1st of November, and then on to the end of February, will they cover five frames? As our Yankee friends say, I guess they will not, although they may have one of the best queens that ever lived. I fail to see, therefore, how this hive is to be filled with bees by this one queen, by the (say) middle of June, to be ready for the honey flow. This fine sunny weather the bees are out in abundance, and I find they decrease in numbers very fast, and will continue to decrease through the winter, on all such fine days of sunshine, especially if there is snow on the ground.

There is but very little if any breeding from now until March, and during the whole of that time the bees are diminishing, and, therefore, I am of opinion, from twenty or more years of experience, there is not one hive out of twenty that would cover twelve frames with bees by the end of April, if they did by the end of May. Hence, the difficulty—nay, the impossibility of covering forty frames by the end of June, without the addition of swarms, the produce of other queens: I therefore say the 100 lbs. is not the produce of one queen or hive, but many.

It is not a cause for fear with the weather there is more than one queen alive in a hive or not, but think as the success of the colony is dependent on the life of *one* bee, it would be much better if there were half-a-dozen, so as to quickly fill a forty or fifty-frame hive to produce all the more readily the 100 or 200 lbs. of honey, as some so sanguinely speak of. There may not be more than one queen left alive in an ordinary hive, or when they go into winter quarters; but who has ever proved that in a hive of forty or more frames, there are not two or more queens at the same time? It may be a new idea, but I cannot on any other hypothesis account for such rapid increase of bees, so as to cover a forty-frame hive by the end of June. Take, for instance, an ordinary hive or skep, get two swarms from it, and then unite them in one hive, and they would not cover twenty frames. I therefore ask those who have had such (to me) extraordinary yields of honey, to honestly state all the facts, *i. e.*, to confess the addition of swarms, or deny what I presume to be the facts. The two cases I mentioned in my last prove to me that there is at times more than one queen in a large hive, at the same time each having her own colony and dominions.—SHERBORNE, *Dorset*.

BEES AND MANURE-HEAPS (1326).

[1340.] Your interesting and always agreeable correspondent, Mr. Webster, places me under the necessity of inflicting upon your readers what, I fear, may be a dreary letter in defence of the position I took up, and which he attacks. I will endeavour to be as little prosy and as clear as I can. Far from wresting the honours from his hand, there seemed to me no honour in entering into the discussion, but only a probability of putting my unworthy head into a hornets' nest, so to speak, and the consequent labour of defending it. Such labour, I may say, however, becomes a pleasure when criticised by the gentleman in question.

Mr. W. says (p. 445) our bees resort to manure-heaps for the purpose of obtaining hippuric acid, *i.e.*, an acid contained in the urine of horses or beasts. I reply (p. 463) that 'uric acid might be a better term, seeing that uric is found in animal, and hippuric in human liquid excreta, thus, so to speak, reversing their ordinary positions.'

The question before us was that of bees visiting *all sorts* of objectionable places, not stable or farm-yard heaps alone; 'GENTLEMEN' on railway platforms being named amongst the rest by one correspondent. I therefore suggested uric acid as being a better term than hippuric, a more comprehensive one, there being so many derivatives of uric (heaps of them—oxaluric, cyanuric, and what not), hippuric being one of them. Who is then to say that they collect that solely, or even that? I will give a few extracts in support of my statements:—

'Hippuric acid has been discovered in human urine by Liebig.' (Gregory's *Org. Chem.*, p. 135.)

'Some hippuric acid is found in human urine under ordinary circumstances.' (Remsen's *Org. Chem.*, p. 291.)

'Hippuric acid is a normal constituent of human urine.' (Attfield's *Pharm. Chem.*, p. 299.)

'Hippuric acid is contained in cow's urine 1 in 100.' (Bloxam's *Chemistry*, p. 621, 2.)

'Uric acid is contained in human urine 1 in 1000.' (Bloxam's *Chemistry*, p. 621, 2.)

'Uric acid occurs in human urine and in the urine of carnivorous animals.' (Remsen, p. 205.)

So much for the mixed origin of both.

I am next asked, 'Upon what food can an animal be fed in order that benzoic acid may be taken into its system in quantities sufficient to form hippuric acid, which is found in every manure-heap frequented by bees?' Then comes the joke, 'Perhaps they feed horses in Yorkshire upon gum benjamin.'

This is where Mr. W. goes astray. I said, 'Hippuric will be secreted by all animals which have benzoic given them.'

In reply I will quote again:—'Dr. Alexander Ure first pointed out that benzoic acid changed uric into hippuric.' (Squire's *Comp. to Brit. Pharm.*, p. 7.) 'The supposed conversion of benzoic into hippuric acid has been unequivocally established.' (Wm. Keller in *Annalen der Chemie und Pharmacie.*) 'Where horses have been worked hard their urine contains benzoic instead of hippuric acid.' (Naquet's *Princip. of Chem.*, p. 576.) 'Benzoic is now made from urine of herbivora.' (*Ibid.* 576.) 'Only fresh urine yields hippuric acid, for after putrefaction only benzoic acid can be obtained from it. Conversely, if benzoic acid be administered to an animal it makes its appearance as hippuric acid in the urine. It is remarkable that this acid can only be obtained when the animals are *kept at rest*, for if *actively exercised* the above treatment educes benzoic in place of hippuric acid.' (Bloxam, p. 622.) 'Hippuric acid is found in the urine of patients whose medicine contained benzoic acid.' (Attfield's *Pharm. Chem.*, p. 299.) 'If benzoic acid be taken with the food it appears as hippuric in the urine.' (Remsen's *Org. Chem.*, p. 291.)

The third paragraph of Mr. Webster's letter charges me with making 'an astonishing misstatement in confounding nitro-benzol, or artificial essence of almonds, with the benzoin products. Artificial essence of almonds

is produced by the action of strong nitric acid on benzol, a liquid obtained from coal-tar, and by no means to be confounded with benzoin. Nitro-benzol cannot be even used as a flavouring ingredient, on account of its rankness. It is sometimes used for scenting cheap hair-oil and soaps.' The confusion is on the part of my critic, not in my statement. In the first place, I cannot find his nitro-*benzol* at all. There is *nitro*-BENZENE, having the same formula as he gives, prepared exactly as he says, but resulting in the 'essence of *mirbane*.' 'Its odour is like that of bitter almonds, and it is hence used in many cases instead of the latter.' (Remsen, *Org. Chem.*, p. 259.)

In mentioning essential oil of bitter almonds, 'so much used for flavouring,' I alluded to its synonym—benzoic aldehyde. This may be made (Remsen, p. 282) by four different benzoic processes. 'Benzoin heated to redness returns to the state of benzoic aldehyde.' (Naquet, *Princip. of Chem.*, p. 669.) 'Hydride of benzoyl, or essential oil of bitter almonds.' (Attfield, p. 273.) 'Benzoyl is the radicle of benzoic acid, or oil of bitter almonds.' (Gregory, p. 128.) We have then the urine of herbivora containing uric acid, and hippuric when stall-fed, this latter being excreted as benzoic acid when hard worked. We have also benzoic converted by the chemist into its aldehyde, a delicious flavouring, non-poisonous to boot, in opposition to the extracted oil. Mr. Webster will now see how correct I was in my original statement.

One word on the open question. Mr. W. pins his faith to hippuric acid alone, the gathering of which is the sole object of the bees' visits to manure-heaps. On the contrary, I make such a resort a laboratory of nature and a chemical storehouse to which they seek access according to their need for infinitesimal and chemically pure quantities of a host of substances—as I said, nitrates, phosphates, sulphates, alkalies, nitrogenous substances, and mineral matters.

We speak proudly of the chemistry of the bee as one of nature's many marvels, and its mysterious conversion of materials in the darkness of its cell; surely, then, we must allow it to be the correct judge of what it requires, and mentally permit it access to its chemicals, without experiencing either loathing and disgust.

The objections to extracting from broody combs lie not in visits to manure-heaps and other places, but to extracting brood-pap instead of honey.—R. A. H. GRIMSHAW, *Horsforth.*

NOTICES TO CORRESPONDENTS & INQUIRERS.

T. RICHARDSON.—*Candy.*—Into a tin saucepan put about three-quarters of a pint of water, let this boil, and gradually stir in 6 lbs. of white lump sugar. Keep it boiling, and stir to prevent burning. To test when it is done, dip your finger into cold water, then into the boiling sugar, and back again into the water; if properly done it will be crisp and brittle: or drop a little on a plate, and if sets tolerably hard in cooling, it is done enough. If very sticky and soft, it must be boiled a little longer. When hard, take off the fire, and stir it till it begins to set; place paper into saucers, and pour the candy out into them. In half-an-hour it will be hard and ready for use. Great caution is requisite to prevent it from being burnt, as burnt sugar is injurious when it is fed in cold weather.

C. H.—Pea-flour candy would be found serviceable, but great caution should be exercised in not unduly stimulating the bees at this season. Proceed as above (see T. Richardson), and as soon as it is taken off the fire stir in 1 lb. of pea-flour, and when setting pour into saucers.

F. JUBB.—*Draining.*—We do not advise you to pierce the combs with a knitting-needle. Uncap the cells with a sharp knife, and in a warm room near the fire, lay the comb across an earthenware pan, and when the greater part of the honey has drained from both sides of the comb give the frame back for the bees to clean. Afterwards, wrap the frame and comb in paper and store it in a dry place. All this should have been done sooner, but it may still succeed in fine weather.

W. J.—*Wide Sections.*—It is very doubtful whether bees would fill 8 × 6 × 3 inch sections 'solid,' as you term it. Probably they would build double combs, crosswise, or join section to section, foundation notwithstanding. In our opinion, there is no better width for section-boxes than 2 inch. If you decide to experiment in this direction we shall be glad to hear the result.

P.—The honey is of a fine flavour, and seems to us to taste of *wild* flowers, such as thyme, and probably the sweet chestnuts mentioned have also something to do with its strength of flavour.

H. WITT.—The sample forwarded is an excellent honey. Though possessing a very strong flavour of English heather honey, it cannot be pronounced to be pure heather, as it has a perceptible admixture of honey from other plants. It would command a good price in the market.

C. H.—As desired, your query has been forwarded to Mr. Cheshire.

W. T. CADNESS.—If you consider that there is any probability of your bees requiring more food, candy cake, made as above, can be given above the cluster. There is no occasion to disturb the bees by the removal of the dummy frame.

H. LAMBERT.—Place a cake of candy, made after the above receipt, over the cluster. It may be that you made some mistake in the manufacture of the syrup.

Παιδαγωγος.—The viscidity of your honey is caused by an admixture of heather honey, or it has been gathered from plants whose honey candies very quickly. As you are unable to extrude it by means of the extractor, your best way would be to shave off the cells from each side of the comb as near the mid-rib as possible, give the combs to the bees to clean out, and preserve for rebuilding in the spring. The shavings containing the honey may be squeezed first, and the wax melted afterwards, when the remaining honey will separate. Also see reply to F. Jubb.

AMATEUR.—*Making Hives.*—Replying to your questions would involve much labour, and occasion considerable loss of time, to any correspondent who might feel inclined to accede to your request. It would be much more to the purpose if you were to purchase, and to study, Cowan's *Guide-book*, where all the information you are in quest of can be obtained in an accessible form in the chapter entitled 'Hives,' page 22.

Business Directory.

HIVES AND OTHER APPLIANCES.

ABBOTT BROS., Southall, and Merchants' Quay, Dublin.
APPLETON, H. M., 256A Hotwell Road, Bristol.
BAKER, W. B., Muskham, Newark.
BALDWIN, S. J., Bromley, Kent.
BLOW, T. B., Welwyn, Herts.
BRITISH BEE-KEEPERS' STORES, 6 George Yard, Fenchurch St.
BURTT, E. J., Stroud Road, Gloucester.
EDEY & SON, St. Neots.
HOWARD, J. H., Holme, Peterborough.
HUTCHINOS, A. F., St. Mary Cray, Kent.
MEADHAM, M., Huntington, Hereford.
MEADOWS, W. P., Syston, Leicester.
NEIGHBOUR & SONS, 149 Regent St. & 127 High Holborn.
STOTHARD, G., Welwyn, Herts.
WEBSTER, W. B., Wokingham.
WOODLEY, A. D., 26 Donnington Road, Reading.
WREN & SON, 139 High Street, Lowestoft.

HONEY MERCHANTS.

ABBOTT BROS., Southall, and Merchants' Quay, Dublin.
BAKER, W. B., Muskham, Newark.
BALDWIN, S. J., Bromley, Kent.
BRITISH BEE-KEEPERS' STORES, 6 George Yard, Fenchurch St.
BRITISH HONEY CO., Limited, 17 King William St., Strand.
EDEY & SONS, St. Neots.
HOWARD, J. H., Holme, Peterborough.
NEIGHBOUR & SONS, 149 Regent St. & 127 High Holborn.

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Editorial, Notices, &c.

ANNOUNCEMENT.

We purpose in our next and in successive numbers to give in a narrative form the experiences of a lady bee-keeper. These experiences are from the pen of Mrs. Reginald Bray, the author of *Family Feats, Ten of Them, We Four*, and several other works which have been favourably received by the public. Beginners in bee-keeping, especially ladies, will find this narrative both interesting and instructive, and it will 'encourage those who as yet have met with little success to continue with a good heart, feeling sure that success will await them in the end.'

APIARY COMPETITION.

In the number of the *Journal* for Oct. 20 we published the narrative of a Cottager's Apiary Competition which has been recently brought to a successful close at Hawkhurst in Kent. We consider so excellent a method of stirring up a friendly rivalry is calculated to do more for the cause of *improved bee-keeping* amongst the class concerned than anything hitherto attempted; and therefore we would do all in our power to advocate its adoption into the programme of all County Associations.

The arrangements as set forth appear to be few and simple, and applicable to any well-organized *branch* of a county Association. Its novelty and, at the same time, its practical utility, as a means of stimulating the desire for a better acquaintance with the numerous details of bee-keeping, irresistibly attract the attention of the rural cottager in whose interest the experiment has just now been made. The idea of the competition is probably taken from the now long-established practice of numerous horticultural societies throughout the country in awarding prizes to the cottagers who exhibit the greatest skill in the management of their home gardens. These latter have borne such excellent fruit in the shape of moral and pecuniary benefits that they bring into immediate view the possibility of awakening up to new life many of the Associations which now betray a tendency towards decline. The practical suggestions that occur to us in contemplating its extension are that the County Associations generally should institute the competitions in one or more districts of their respective counties, each year, in which moderate prizes should be offered, and this by means of a fund provided in the locality; and in cases where two or more localities are carrying out competitions a prize should be offered by the *County* Association itself for the benefit of the district branch which attains the highest degree of success. This might, again, be supplemented by a prize, or prizes, to be given by the British Bee-keepers' Association to the *County Association* which should prove itself the best entitled to receive it.

USEFUL HINTS.

WEATHER AND SEASON.—Gales and heavy rainfall have ushered in the gloomy month of November. The gales, in places reaching almost to the force of hurricanes, have tried, no doubt, the stands and roofs of hives, and where precautions were not taken many a good colony has suffered or been destroyed. Now, at all events, we may consider the summer ended, and the year will be classed amongst the best, in an apicultural point of view, in this uncertain climate. We have known better honey seasons, as regards duration and quantity, but not more than one in ten; and with reference to quality, we never knew it better. Our bees are going into winter quarters well provisioned with natural stores and strong in population, affording a bright prospect for another season, since, with modern appliances and the aid of science, we may consider the wintering problem solved, and those who lose their bees have only themselves to blame.

FOUL BROOD.—Some one, perhaps, will exclaim, 'How about foul brood?' Ah, there's the rub! Nevertheless, *nil desperandum* must always be our motto; and even here we must not despair, although experience teaches in this, as in all other matters, that prevention is better than cure; and for ourselves we must confess that we place more confidence in prophylactic than in curative measures. In 'stamping out' and the liberal use of preventive measures is our chief hope. County Associations, by means of their experts, may perform a great and good work by advocating and teaching methods of prevention, and we strongly recommend the subject to the consideration of county representatives at their quarterly meetings.

REMOVING HIVES to various positions in the same apiary may now be practised wtth success, as well as to greater distances. It is best done in cool, dull weather, and in the evening,—quietly and with as little shaking as possible. In removing short distances, care must be taken to disguise the old position, and a board placed in front of the hive after removal, will cause the bees to mark the new locality on their first flights.

Aspect.—We prefer a south aspect to all others for the winter months. The hives should stand clear of trees and the dripping of eaves, but should be well sheltered from N.W. to S.E. by walls, hedges, or evergreen bushes of laurel, Portugal laurels, or other hardy evergreen shrubs. Such a position is conducive to cleansing flights from lying open to every ray of sunshine, enticing forth to sanitary flight and fæcal discharge. Attention to these small matters will amply repay the labour bestowed by the improved appearance of the apiary and the vigorous health of the bees.

Enemies of the Bees, during their winter's rest, must be guarded against. Keep mice from entering the hives, by nailing perforated zinc across the entrances, leaving a small opening only for the passage of the bees. This plan causes no impediment to ventilation. Beware of the titmouse (*Parus major*), for on fine days, when bees are in flight, he will make many a hearty meal in the apiary, being unable to obtain insect food from other sources. If disinclined to kill, scare him from the precincts of the apiary by an occasional firing of blank cartridge. He is a timid bird, and is well aware of the danger of the gun.

Winter Passages.—Mr. Langstroth writes:—'I strongly advise every one to make winter passages for their bees. As the frames touch neither the top, bottom, nor sides of the hives, the bees have such extraordinary facilities for intercommunication that they cannot be depended upon to leave any holes in their combs.' He advises:—'Late in the fall, cut with a penknife a hole, an inch in diameter, in the centre of each comb, about one-third from the top; but if these holes are made before the bees feel the need of them, they will frequently close them.' In many hives, passages will be found through the combs, chiefly, but not always, at the upper corners. Where such do not exist, it is always our practice to follow Mr. Langstroth's advice. Failing these passage-ways, we have repeatedly known colonies to perish while in possession of abundance of sealed honey outside the brood-nest, which they were unable to reach in a cold season by passing round the side or bottom bars of the frames.

Spacing Frames.—It is too late now to open hives and cause disturbance by cutting combs, but, by taking advantage of a fine mild day, the distance between combs may be increased without injury to the bees; and this will form a substitute for winter passages by enabling them to cluster in thicker seams between the combs, and thus to keep up a higher degree of temperature, and to forage, as it were, in the 'home circle.' The quilts having been removed and replaced by a carbolised cloth wrung out dry, and the division-board, or an outside frame, being removed, strips of wood, of the length and thickness of the top bars of the frames, and a quarter inch wide, may be pushed in between the top bars, thus rendering the spaces, from centre to centre of the bars, $1\frac{3}{4}$ inch instead of the usual $1\frac{1}{2}$ inch. Our hives which were treated in this way wintered exceptionally well last season. It is very much against our principles to disturb hives so late in the season, but where due preparations have been neglected at the proper season, our readers must judge for themselves as to the desirability of performing the operation described. Certainly it should be done only in the finest weather, and no *smoke* must be used, or the disturbance caused will raise the temperature of the hive to such a degree—causing the bees to gorge themselves—that condensation of moisture, and consequent internal dampness, are sure to follow, causing dysentery, and leaving the last state of the colony worse than the first.

Candy.—Syrup-feeding is no longer admissible. The insertion of a frame of sealed honey at the side of the brood-nest, or candy laid on the top of the frames beneath the quilt of those colonies which are short of stores, is the only substitute for earlier feeding that can be admitted.

Skep Coverings.—The common, well-known earthenware pan, generally used for milk, forms an excellent cover for skeps. Padding of hay, or other soft material, laid on the crown of the skep, will cause additional warmth and make the pan sit well. It is also of advantage to encircle a skep with well-twisted hay-bands. Generally speaking, in good sound skeps, when protected and kept dry, bees almost invariably winter well, and are amongst the first to show signs of activity at spring. The great mistake made by cottagers of the old school is that they cling to the old-fashioned small dome-shaped skep, in preference to the more modern flat-topped roomy one, upon which sectional, or any other kind of super can be used.

Age of Combs.—It is a question often asked—'How long is it advisable to retain combs?' We may fairly suppose that three batches of brood are hatched from the same cells—taking the brood-nest only—in every season. In five years, therefore, we shall have fifteen layers of exuviæ in these cells, provided they are not removed by the bees, which experience seems to prove they are not. The brood-cells, consequently, are much reduced in size, at this age, and the bees reared will be small in size. We have used the same combs for fifteen years, without a break, when the brood-cells became so diminutive that the bees hatched therefrom were a pigmy race, and the combs were black as Erebus, and pollen-clogged. This was before the days of foundation. With our present advantages we do not think it profitable to use combs longer than four or five years. When we consider the rapidity with which a *natural swarm* will convert foundation into beautifully straight and even combs, and the vigorous breeding and work performed by such colonies, when compared with those allowed to remain upon old combs; also the quality of the honey stored, and of the bees produced, there can scarcely be room for doubt as to the disadvantage of retaining combs too long.

Dr. Butler, in his *Feminine Monarchie* (1609), tells us of a colony having occupied the same spot for 110 years. Their domicile was under the leads over the study of Ludovicus Vives, in Corpus Christi College, Oxford; and it is a curious fact that this college is called by its founder, in the statutes, 'The College of Bees.' Erasmus writes to its first president addressing him under the title of '*Johanni Clymundo Collegii Apum Præsidi.*' Vives took up his residence as Professor of Rhetoric in 1520, when he was welcomed by the swarm of bees, which continued in possession until 1630, when the leads being decayed were removed, and we are told that an almost incredible mass of honey was found beneath them. Vives was called in the University the 'Mellifluous Doctor,' a proof, if one were needed, of the eloquence assigned in ancient times to those to whom the bees paid particular attention, and to whom they became attached. Dr. Butler concludes his account thus:—'How sweetly did all things then concord; when in this neat museum, newly consecrated to the Muses, the Muses' sweetest favourite was thus honoured by the Muses' birds!' '*Apes cum causâ Musarum dicuntur volucres.*'—Varro.

The cells on these ancient combs must have been cut away down to the septum and renewed many a time during so lengthened a period, and the colony must have been augmented or replaced, by many an additional swarm.

THE STRUCTURE OF FLOWERS WITH REFERENCE TO INSECT AID IN THEIR FERTILISATION.

In the year 1793 Christian Conrad Sprengel published his interesting treatise on the structure of flowers with special reference to insect aid in their fertilisation. This book was almost wholly neglected for more than half a century. Nevertheless, it contains, with some fanciful ideas, the germs of the doctrine now generally held,

together with many excellent illustrations of it. That eminent naturalist, the late Charles Darwin, published in 1862 his admirable treatise on the fertilisation of orchids by the aid of insects. Since that time a copious special literature has appeared on the subject. We may mention the names of Herman, Müller, Delpino, Hugo von Mohl, and Hildebrand, amongst Continental writers; Charles Darwin and Sir John Lubbock amongst our own countrymen; and Dr. Asa Gray and Dr. Goodale amongst our brethren across the Atlantic.

Linnæus and his immediate successors taught that the adjustments in hermaphrodite flowers were such on the whole as to secure the application of the pollen of its stamens to the stigma of its pistil or pistils. 'The present view,' to quote the words of Dr. Asa Gray, 'is that this is doubtless strictly secured in certain flowers of a moderate number of species, but never in all the flowers of any such species; that in ordinary flowers where it may commonly take place it is not universal; that in the larger number of species there is something or other in the floral structure which impedes or prevents it.' It will be gathered from this definition that some flowers are adapted for close fertilisation, some for cross-fertilisation, some for either. Before proceeding further let me state for the information of those who have not given much attention to the construction of flowers that they consist of two kinds of organs, viz., what have been apparently called protecting organs or floral envelopes, which when of two sets are named calyx and corolla, and the essential reproductive organs which co-operate in the production of seed—the stamens and pistils.

'A complete flower,' to quote from Sir John Lubbock, 'consists of (1) an outer envelope of calyx, sometimes tubular, sometimes consisting of separate leaves called sepals; (2) an inner envelope or corolla, which is generally more or less coloured, and which like the calyx is sometimes tubular, sometimes composed of separate leaves called petals; (3) of one or more stamens, consisting of a stalk or filament, and a head or anther in which the pollen is produced; and (4) a pistil or an ovary, which is situated in the centre of the flower, and contains one or more seeds or ovules. The pistil consists of a stalk or style and a stigma, to which the pollen must find its way in order to fertilise the flower, and which in many familiar instances forms a small head at the top of the style. In some cases the style is absent, and the stigma is consequently sessile.' For our present purpose the stamen may be regarded as the fertilising organ, and the pistil as the seed-bearing organ. In an ordinary flower the pistil is surrounded by a row of stamens, and at first sight it would appear that a more simple arrangement for the reproduction of the plant could not well be contrived. The pollen would seem to be arranged to fall upon and dust the stigma of the pistil and effect what is known as close fertilisation. This does happen with some flowers, chiefly with the inconspicuous ones. It is in the largest number of flowers with a gay corolla, or which emit a sweet scent and possess honey-glands, cross-fertilisation is the rule and close fertilisation the exception.

There are various contrivances in these flowers which effectually prevent self-fertilisation. In many species the stamens and pistils are situated in different flowers. Such species are named diclinous; when the stamens and pistils are situated in different flowers on the same plant the species is called monœcious; when on different plants diœcious. Delpino has classified flowers into Anemophilous (literally wind-lovers) and Entomophilous (insect-lovers), denoting wind-fertilised and insect-fertilised. It is not my purpose in this paper to treat of the former, but will observe that wind-fertilised flowers are mostly neutral or dull in colour, destitute of odour and honeyless. Pines, firs, and other *Coniferæ* are examples of anemophilous plants. Dr. Asa Gray observes that 'Insect fertilisable or entomophilous flowers are correlated with showy coloration (including white, which is most showy at dusk), odour or secretion of nectar, often by all three modes of attraction to insects combined. Some insects, moreover, visit flowers for their pollen, a highly nutritious article, and ordinarily produced in such abundance that much may be spared. The showiness of the corolla or other floral envelopes is an attractive adaptation to fertilisation, enabling blossoms to be discerned at a distance; nor do we know that fragrance or other scent, or that nectar, subserves any other uses to the flower than that of alluring insects.'

'Adaptations in the pollen of such blossoms for transportation by insects are various. Commonly the grains are slightly moist or glutinous, or roughish, or studded with projection, or strung with threads (as in *Œnothera*), so as not to be readily dispersed in the air, but to have some slight coherence as well as capability of adhering to the head, limbs, or bodies of insects, especially to their rough surfaces; and in two families (*Orchidaceæ* and *Asclepiadaceæ*) the pollen is combined in masses and with special adaptations for being transported *en masse*. With this the stigma is usually correlated by roughness, moisture, or glutinosity.' Sprengel was the first to discover that in many species where the stamens and pistils are situated in the same flower they do not mature at the same time; consequently the pollen cannot fertilise the stigma. Sometimes, as in the Arum, the pistil matures before the anthers. Such plants are called proterogynous (or protogynous). In others the anthers mature before the pistil. These plants are named proterandrous (or protandrous). The familiar *Arum maculatum*—the common arum, or lords and ladies,—of our woods and hedges, is a good example of a proterogynous plant. The well-known green leaf encloses a central pillar which supports a number of stigmas near the base and of anthers somewhat higher. Nothing would seem easier at first sight than that the pollen of the anthers should fall on and fertilise the pistils below them. But this does not take place. The stigmas mature before the anthers, and by the time the pollen has fallen have become incapable of fertilisation. It is consequently impossible for the plant to fertilise itself. Owing to the construction of the spathe the pollen cannot be carried away by the wind. What happens is as follows: The pollen when shed drops to the bottom of the tube, where it remains secure from disturbance by wind. Small insects attracted by the showy central spadix, or the prospect of honey or shelter, enter the tube while the stigmas are mature. Above the anthers and growing from the central pillar is a fringe of hairs pointing downwards. This contrivance allows small insects to enter, but effectually prevents their exit until the stigmas have matured. After awhile the stigmas have ripened and each secretes a drop of honey, thereby rewarding the insects for their imprisonment. Then the anthers ripen and shed their pollen, which falls upon and dusts the insects. Shortly after the hairs referred to shrivel up and the insects are set free. They carry the pollen with them, and on their visit to another plant can hardly fail to deposit some of it on the stigmas. In this manner cross-fertilisation is secured. I have often noticed a large number of small insects, especially flies, safely imprisoned in the arum before the hairs have shrivelled up.

Proterandrous plants, or those in which the anthers mature before the stigmas, are much more numerous. As examples amongst the wild flowers which are to be found in this locality,* I must mention wild thyme (*Thymus serpyllum*), rose bay, willow herb, *Epilobium angustifolium*, Blue Meadow Crane's Bill (*Geranium pratense*), Mountain Crane's Bill (*G. pyrenaicum*), with many of the *Umbelliferæ* and most of the *Compositæ*. Sir John Lubbock states that most of the British wild flowers which contain both stamens and pistils are more

* Bath.

or less proterandrous. These are almost dependent upon the visits of insects for fertilisation. Amongst foreign plants now common in conservatories *Clerodendron Thompsonii*, a verbenaceous African climber, is a good example of a proterandrous plant. Its crimson corolla and bright white calyx in combination are very conspicuous and serve to attract insects. The long filiform filaments and style, upwardly enrolled in the bud, straighten and project when the corolla opens, the stamens remain straight, but the style proceeds to curve downward and backward; the anthers discharge the pollen; the stigmas are immature and closed; and anthers effete, and the filaments recurved and rolled up spirally, while the style takes the place of the filaments, and the two stigmas now separated and receptive are in the very position occupied by the anthers the previous day. The entrance by which the proboscis of a butterfly may reach the nectar at the bottom is at the upper side of the orifice. It is impossible for the flower to self-fertilise. A good sized insect flying from flower to flower and plant to plant must carry pollen from one to the stigma of the other.

I cannot help calling attention to the mode in which cross-fertilisation is secured in the Blue Meadow Crane's Bill (*Geranium pratense*), for several reasons. This beautiful Crane's Bill, with its lovely blue corolla and elegant leaves, must be well known to all who stroll in the meadows adjoining the Avon or by the brooks in the neighbourhood of this fair city. It is especially interesting as the flower which first led Sprengel to his researches. 'In the year 1787,' writes Sir John Lubbock, 'he (Sprengel) observed that in the corolla of this species there are a number of delicate hairs, and convinced, as he says, "that the wise Author of Nature would not have created a single hair in vain," he endeavoured to ascertain the use of these hairs and satisfied himself that they served to protect the honey from rain.' Another point of interest in this flower is the spontaneous movement of the stamens and pistils. Kolreuter seems to have been the first to observe this motion in another dichogamous plant, *Ruta graveolens*. He supposed that the object was to bring the stamen in contact with the pistil and so ensure close fertilisation. Nature, as Sprengel pointed out, had a very different purpose to fulfil. It was to bring the stamen and pistil successively in contact with the same part of the insect's body, and so insure cross-fertilisation. When the flower first opens the stamens lie on the petals at right angles with the upright pistils. As they come to maturity they raise themselves parallel and close to the pistil, which is, however, not yet capable of fertilisation. After they have shed their pollen they return to their original position and the stigmas unfurl themselves. As the stigmas do not become mature until all the stamens have shed their pollen, *G. pratense* is wholly dependent upon insect aid for fertilisation. The spontaneous movement thus ensures cross-fertilisation, and indicates another of Nature's plans for bringing about the end desired by making certain insects the carriers of the pollen.—W. G. Wheatcroft (*The Journal of Microscopy*).

(*To be continued*).

Foreign.

FRANCE.

We stated in our last issue that we would give the names of those who had received awards at the recent Paris Exhibition. The following is a list as given by our contemporary the *Apiculteur*;—

Abeille d'honneur: M. l'Abbé Boyer for his exhibits and the formation of a bee association; M. Asset and M. Saint-Peé.

The Gold Medal of the Ministry of Agriculture; M. Gois-Flatté, of Egriselle-le-Bocage, for his exhibits and his apiary.

First-class Medal (large size) of the Society: M. Bertrand, of Buffon; M. l'Abbé Delepine, of Boussy-Saint-Antoine; M. Kirsch, of Baigneux-les-Juifs; M. Meyran, of Mesterrieux; M. Moglia, of l'Ecaille; M. Parpaite, of Carignan; M. Royer, of Pargues; M. Vaast, of Arras; and M. Vivien Joly, of Mezière-la-Grande Paroisse.

First-class Medal (small size): M. Raimbault, of Sens, for his straw hives; and M. Warquin, of Bellevue.

Rappel de Medaille (first class): M. Bourgeois, of Lons-le-Saunier; and M. Robert-Denis, of Vendhuille (Aisne), the latter for his artificial foundation.

Medaille de Vermeil de la Société (large size): M. Robert, of Casseau.

Medaille de Vermeil (small size): M. Jacquelin, of Chaville, for his exhibits, and his disinterested assistance at the bee-lectures and lessons given at Luxemburg.

Medaille de Vermeil de la Société de l'Aube; M. Joly, of Tremblay-le-Viscomte-Eure-et-Loir, for his uncapping knife.

Silver Medal of the Ministry of Agriculture: M. Gremy, of Housaye.

Silver Medal given by the Aube Bee Association: M. Braille, of Saint-Pol.

French Agriculturists' Society Silver Medal: M. Sevalle, of Paris, particularly for his wax-melting pot.

Large Second-class Medal: M. Arpin, of Bourg-Saint-Maurice-Savoy; M. Boulangé, of Jouy-en-Josas; M. Couturier, of Juvisy; M. Droux-Albain, of Chapois; Mr. Feminias, of Mahon, Spain, for his run honey and mode of packing it; M. Holder, of Steinbourg; and M. Sartori, of Milan, Italy, for his chromos.

Second-class Medal (small model): M. Bonhomme, of Authe; M. Meuvret Haquin, of Torigny-sur-Oreuse; and M. Petit, of Ecos.

Bronze Medal (large size) has been granted to the Central Office for the Colonies for exhibits of colonial honey and wax; also to M. Rousseaux, of Aydes, and the Rev. David, of Villabon, Cher.

The following awards were given to merchants, manufacturers, &c., viz.:—

Diploma of Merit: Madame Vve. Brunet, of Paris, and M. Petit, also of Paris. The former mostly for her honey pistils.

Rappel of Diploma of Merit: M. Wavelet, of Arras, Pas-de-Calais, for his Arras hearts and other items of confectionery.

First-class Medal: M. Béal-Canonne, of Cambray, Nord, for his hydromels; and M. Coenon, of Paris, for his glass pots.

Second-class Medal (large size): M. Deroy, M. Gariel, M. Lagache, M. Mignel, and M. Moriceau, all of Paris.

Second-class Medal (small size): Messieurs Poiret frères, of Paris, for their canvas pressing honey and running honey; and Mr. Raguin, of Sens, Yonne, for his honey barrels.

Bronze Medal (large size): M. Jay, of Paris, and Messrs. A. Menetrel & Cie., of Lille-Maizière; the former for his perforated zinc.

Besides the above there were also sundry prizes for other objects, not strictly connected with the Exhibition itself or its exhibits.

AUSTRALIA.

Black Honey.

Black honey is one of the latest therapeutical novelties. It is an Australian product, the bee by which it is made having been found far in the interior of the central wilderness of that continent, feeding on the flowers of the eucalyptus-tree. The insect, which is said to be new to science, and has been given the name of *Apis nigra mellifica*, is very small and black. All attempts to domesticate it in Tasmania have failed, but it is said

that some success has been achieved in Algeria, in the neighbourhood of plantations of eucalyptus. The so-called honey is at ordinary temperature a somewhat transparent, syrupy, thick, homogeneous, dark orange-coloured liquid, with a peculiar odour similar to that of eucalyptus; it is very soluble in water, milk, and wines, much less in alcohol. Its fermentation is exceedingly difficult, on account of the large quantity of levulose which it contains. Its specific gravity is 1·44, and it rotates the polarised ray 22°. A thousand parts of it contain 611·6 parts of sugar, mostly levulose, 1·8 parts of ash, 215·6 parts of water, and 171 parts of various substances, comprising eucalyptol, eucalyptene, terpene, cymol, and odorous and resinous matters. When black honey is given freely to dogs, dissolved in warm milk, it produces a great reduction in the number of cardiac pulsations. Thus, in a feverish dog the pulse fell from 125 to 70 a-minute; this fall was accompanied by a lowering of the temperature 1° C. The effect lasted twenty-four hours, with a slight tendency to sleep, but with no symptoms of toxic depression. A tablespoonful given to a man, dissolved in a little warm water or milk, produced after some minutes a slight agreeable sensation of warmth throughout the body. In half an hour elimination of the active principles through the pulmonic mucous membrane commenced. The voice became clearer and sharper, and the breath perfumed. The urine acquired an odour resembling that of the *Cassia farnesianum*, an Algerian plant, from which is prepared the perfume known as 'new-mown hay.' Dr. Caraman believes that this honey will be a valuable remedy in the treatment of bronchial catarrhs, and that it acts as a sedative to the heart like digitalis. He thinks, also, that it will be of practical value as a febrifuge, and a bactericide, *e.g.*, in phthisis, in typhoid fever, in leucorrhœa, gonorrhœa, and diseases of the kidneys, bladder, and urethra, as it acts more energetically than sandal oil. If it be produced in the enormous quantities described, it ought eventually to find its way into general commerce, and be obtainable at a reasonable price.—*Therapeutic Gazette, June* 15, 1887.

ASSOCIATIONS.

KENT BEE-KEEPERS' ASSOCIATION.

The Council of this Association, which meets in the ordinary course four times a-year, held its October meeting on the 27th ult., at the 'Saracen's Head' hotel, Ashford. The Honorary Secretary presented a report of the chief events of the season, embracing therein the expert's spring tour, the annual show, the cottagers' apiary competition at Hawkhurst, the bee-tent engagements which had been fulfilled, and a statement of affairs generally. The Honorary Treasurer made a statement of the condition of the finances which justified the hope that the accounts at the end of the year would be in a satisfactory state.

From the Secretary's report we extract the following:—'The Annual Show was held at Ashford on the 27th July, in conjunction with the Cottage Gardeners' Society's Exhibition. The number of entries was hardly up to the average of previous years, but the increase in the cottagers' exhibits and their largely increased bulk, spoke plainly to the attainment in a large degree of the fundamental object of the Association's existence. Miss Seely, of Woodchurch, and Mr. R. Filmer, of Ruckinge, competed for the silver and bronze medals offered by the British Bee-keepers' Association, and it is gratifying to know that the lady obtained the first honours. It may be mentioned that Miss Seely has been practising bee-keeping for several seasons, and although working single-handed, has not hesitated to purchase hives and appliances of the best description, in the expectation that she would reap the return of a considerable addition to her means, mainly provided by the use of her needle. Besides the prize above mentioned she also secured a first, second, and third in other classes. The prize list contained also the names of the following cottagers:—F. H. Cudd, six 1st and one 3rd prizes; R. Filmer, four 2nd prizes; E. Posse, one 3rd prize; G. Bishop, equal 1st prize; T. M. Spaulding, one 2nd prize. In the class for hives and appliances Mr. A. F. Hutchings, of St. Mary Cray, exhibited a large and practical collection. To further illustrate the advance of cottagers in scientific bee-keeping the fact should be noted that the lectures and manipulations of bees were given by Mr. Filmer, more widely known as the 'Platelayer,' who two years ago gained a third-class certificate for his proficiency in the art. The judging was performed by the Rev. Mr. Oddie and Captain Bush, members of the Committee of the British Bee-keepers' Association, who also acted as examiners of the candidates (Mr. T. Badcock and Mr. W. Blake) for third-class certificates, whom they duly passed. To those gentlemen the Association is greatly indebted not only for the time and trouble freely given, but also for the great pains and discrimination exercised in all the duties undertaken by them.'

IRISH BEE-KEEPERS' ASSOCIATION.

The committee met on the 4th inst. Present: Mr. Sproule, in the chair; Dr. O'Farrell, Mr. Gillies, and the Hon. Secretary. Mr. Campbell, on the part of Messrs. Edmondson Brothers, and Mr. J. A. Abbott, on the part of Messrs. Abbott Brothers, attended to arrange for the manufacture of the standard hive. The form in which the committee 'snext report should be issued was taken into consideration.

Lecture on Bee-keeping.—On Monday, the 31st ult., an exceedingly interesting lecture on the 'Wonders of Bee-life' was given in Ulleskelf School for the county parish of Kirkby Wharfe, by Mr. R. A. H. Grimshaw, of Horsforth, near Leeds, one of the secretaries of the Yorkshire Bee-keepers' Association. The room was well filled, and it is to be hoped that the lecture, which was replete with practical hints as to the modern methods of bee-keeping, will leave its mark. A hearty vote of thanks was accorded to the lecturer.

How to Introduce Queens.—Near the close of the day, when there is no danger of robbers, subdue the colony with smoke, find the old queen and remove her. Have a large platform or blanket in front of the hive. Remove every comb with the bees adhering. As the last frame is taken out, shake the bees from it on the platform near the entrance, and replace the frame. Now take the second frame and shake the bees from it some distance from the entrance on the previously prepared platform; when the bees are all off, put the comb in its place in the hive, and treat the third and fourth frames in the same way, shaking the bees about three feet from the entrance. This shaking from the combs completely subdues and mixes up the bees, and causes them to exhale the peculiar scent that bees do when shaken from a limb in swarming-time in front of a hive. When all the frames have been shaken and replaced in the hive, drop the new queen at least two feet from the entrance, and she will at once move on with the marching legions toward the entrance, and in thus mingling with the mass she at once becomes impregnated with the peculiar odour of the colony, and becomes one of them; and by her queenly sound and motions among the bees, she is at once recognised as the mother-bee, and enters the hive joyously with the rest, and at once proceeds to her work of egg-laying. A few whiffs of smoke among the moving mass will cause a more hasty entrance, and also add its scent to that of the bees. By doing this late in the afternoon or evening, everything is quiet and in working order in the morning, and there will be no trouble from other bees. I have introduced quite a number of queens in this way without a single failure.—H. H. Flick (*Bee-keeper's Magazine*).

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. Huckle, *Kings Langley, Herts (see 2nd page of Advertisements).*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

BEE-KEEPING IN SOUTH AUSTRALIA.

[1341.] I promised, before leaving England, to forward an account of bee-keeping in Australia, so I will attempt to fulfil my promise.

I arrived at the Semaphore, half an hour's railway journey from Adelaide, on the morning of the 25th of August, 1887, and soon after arriving in Adelaide was fortunate enough to make the acquaintance of Mr. F. A. Joyner, Hon. Sec. of the South Australian B.K.A., whose name I happened to see while walking along King William Street, the principal road through this pretty town. From him I learned that his Association had been in existence for three years, and he presented me with a copy of the third annual report, which showed that foul-brood was very prevalent in the neighbourhood of Adelaide.

The following table shows the results of some of the members' operations during the year ending 30th June, 1887:—

Name.	Hives beginning of season.	Hives end of season.	Honey taken.		Disease (if any).
			Extracted.	Comb.	
			lbs.	lbs.	
A. E. Bonney.....	1	10	240	130	None.
A Member	3	22	3360	210	Foul brood. Cured.
F. Bowman.....	6	32	Nil.	1320	None.
C. F. Clough	4	11	1395	590	None.
H. H. Dollman...	5	13	300	200	None.
Thos. Gordon ...	3	5	10	25	Foul brood.
John Hill	3	2	Nil.	Nil.	None.
Frank Hill.....	5	12	300	Nil.	Foul brood.
H. J. James	2	5	80	85	Foul brood.
F. A. Joyner	3	11	512	107	Foul brood. Cured.
J. Miller.....	14	15	250	170	Foul brood.
B. Poulton.....	1	1	Nil.	Nil.	None.
J. H. Walters ...	5	14	890	40	Foul brood. Cured.
W. B. Randell ...	4	12	784	700	Foul brood.
Sam. Randell ...	4	12	350	25	Foul brood. Cured.
C. W. Scriven ...	1	3	Nil.	267	None.

By the Secretary I was introduced to Mr. A. E. Bonney, and from these two gentlemen I obtained what information I could during the twenty-four hours' stay I had in Adelaide.

I went, under Mr. Joyner's escort, to view the honey-stand and bee-hive stall in the Adelaide Jubilee Exhibition, where there was a pretty exhibition of comb-honey and extracted in screw-capped bottles, which would compare favourably with that exhibited at the Colonial Exhibition in quality; the honey was enclosed in a glass case about 6 feet square.

I slept in Adelaide, and the next morning I visited Mr. Bonney's apiary, which consisted of twelve strong hives and half a dozen nuclei. It was the commencement of the season, and he was beginning queen-rearing, which he conducted on Alley's system. He told me he experienced much difficulty in obtaining purely mated queens, because, on account of the mildness of the winters, the black drones were flying as soon as those from selected hives which had been stimulated. His plan was to convey his nuclei and hive containing selected drones to the hills, some three miles from the town, where he generally succeeded in obtaining the desired cross, though he found a fortnight was sometimes necessary before all the queens were mated, which he attributed to the fact that they have a greater preference for drones of a different variety.

All his hives contained Langstroth frames, which is the standard adopted by the Association; the only covering to the frames was a piece of calico, the hives were single-walled and had passed through the winter in this condition, out in the open. Scarcely a week had passed during the last winter that the bees were unable to take a flight. But a great drawback to keeping bees in the Colonies is their tendency to robbing; after a few weeks' good honey-gathering the glut, perhaps, suddenly stops, and the bees commence pilfering. In consequence of the mild winters, not warm enough to afford sustenance, the bees often, if a weak stock is unprotected, attack it, and if disease is present, of course a greater destruction is the result.

Mr. Bonney and Mr. Joyner both informed me they had implicitly followed out Cheshire's remedy for foul-brood, but had not found it successful. The plan they employ is to deprive the bees of their combs, put them on sheets of foundation in a clean hive, and feed with medicated syrup or diluted honey prepared as follows:—16 grains salicylic acid, 16 grains borax, and 1 ounce water to 1 quart syrup. This they have found repeatedly to answer well. The honey extracted from the old combs they use in this manner, after boiling it for twenty minutes.

Most of the bees aronnd Adelaide are crossbreds between English and Italians, though Mr. Bonney has some Cyprians which he imported from Mr. Benton. He opened a strong hive of Cyprians to show me, and they were most gentle. He uses no smoke with them, from experience; and he informed me he always found them good-tempered when pure. He, however, spoke disparagingly of them as honey-gatherers; he described them as great queen-raisers, but found them swarm but little. The cross between Cyprians and Italians he found were perfect fiends though very good honey-gatherers.

The South Australians look forward with hope to obtaining pure Italian queens from Kangaroo Island. There is already an apiary started there by a Mr. John Midland, whose address is Fairfield Farm, Cape Cassim, Kangaroo Island, and another by a person unknown to me. I was sorry I had not time to visit either of these farms, but hope to hear further of them, when I will send you an account.

The greater part of the honey raised in South Australia comes from the apiary of Messrs. Coleman and May, of Mount Barker, who own 250 hives or upwards; they have not published their returns, but the hon. secretary informed me their take for the previous year was said to be about forty tons, which would be an average of about 358 lbs. per hive, which is about the average stated in the account of their apiary given in the *British Bee Journal* of 15th September, 1885. This is an exceedingly good average, one not equalled by any other apiary out here; and though I do not wish to be considered incredulous I may remark that the Colonials resemble the Americans in more ways than one.

In Adelaide itself there are only 30,000 inhabitants; the neighbourhood is a good honey-producing country, and the market is consequently overstocked.

The principal yield is from the gum trees—blue and white especially,—a tree called the pepper tree, the wattle, fruit trees, and wild flowers. I tasted some wattle honey, and it is very similar to that produced from the clover. The different gum honeys vary in flavour, but much resemble that gathered from the limes.

Although several weeks pass by in the summer with-

out rain, the drought does not affect the eucalyptus trees, which blossom for a considerable period. In the report of the South Australian B.K.A. above referred to the following is contained:—'Dr. Poulton also enclosed an extract from the *British Medical Journal* referring to the probability of eucalyptus honey becoming of eminent service in the treatment of many diseases, notably in cases of laryngeal, bronchial, pulmonary, cardial, and scrofulous affections; in typhoid and marsh fevers; in whooping-cough or infectious neurosis of the expiratory nerves; in influenza, in renal and vaginal affections, and affections of the bladder. Given on bread or in milk eucalyptus honey may be substituted with advantage for cod-liver oil as an alimentary substance.'

There is just one other point I should like to remark upon. Mr. Bonney informed me that his consignments of queens sent in Benton's travelling-crates have not turned out well; he finds the old-fashioned box with small frames is the better.

My next letter will be on bee-keeping in New South Wales.—W. G. CAMPBELL.

[It may be remembered that about four months ago we notified the departure of Mr. Campbell from England: a short time previous to which Mr. Campbell had obtained a first-class certificate for proficiency in bee-keeping. We desire to thank him for the above communication, and trust it may be the precursor of many more from his pen. We also desire to assure him of our best wishes for his future welfare in the new home of his adoption.—ED.]

IN THE HUT.

'A hit, a very palpable hit.'

[1342.] In my recent peregrinations in and about our hut, I happened to tread on a thistle, when oot frae the heather McNallys spring at me 'in two places,' as the auctioneer says, and I am now requested to say for what purpose I asked for a list of the Christian names, or more particularly, the relationships, one to another, of the McNally family. Mr. William McNally seems to have taken me *au sérieux*, but I have no intention of imitating him in vindictive and vituperative writing; his reply reads more like an extract from *United Ireland* than fair criticism. My reason was given, and if Mr. W. McNally will look at my request again he will find I did not ask *him* for the desired information, but some *courteous* correspondent to supply it as a useful piece of reference. Oughtn't we to have some consideration for those who follow after, and provide them with necessary information, or whatever will they be able to make of the genealogies of the next generation of this family? The request was playfully made, but being made into an angry subject, I must contend now it was a reasonable one, and some one should supply the particulars wanted. It now becomes a painful necessity, for you see, your correspondent says, 'Their name is legion and they are all bee-keepers.' He says, 'They are a dangerous lot to tackle.' If they all write like him, 'dangerous' is not the word I should select, but from what I see in the *Journal* from others of the family he is not a fair type, else why could he not see a joke? Has the proverbial 'surgical operation' to be performed in his case?

> 'If satire be my weapon, yet I'm too discreet
> To run a-muck, and tilt at all I meet;'

hence, I did not address myself to him personally. I was not going to pop my head out of the window and have all the slates tumbling about my ears.

I am requested 'to extract all the articles that have been contributed to the *B. B. J.* from time to time by the McNally family.' Heaven forbid! Why it was that very labour which caused me to close a close perusal of your columns in weariness and despair, crying out for the particulars in question. It was in this wise. A correspondent wrote a short time ago, saying, 'Search for and read, the letters of Mr. McNally in the *B. B. J.* and let me know who is "Coffin Dick."' I found the names in inextricable confusion. Now, by the irony of fate, we find the same

> 'Ruin upon ruin, rout on rout,
> Confusion worse confounded,'

upon the very page (483) on which appears Mr. W. McNally's letter, *i.e.* confusion at the N. of Ireland show—

> 'Between one Dromio and another:
> 'Twixt John McNally and his brother.'

See also pp. 381, 421, 461, 481.

Was there not also confusion about the names and exhibits at the Co-operative Exhibition (see 'A. E.' on p. 378)? They were confounded by—X-TRACTOR.

TO THE CLAN OF McNALLY, JOINTLY AND SEVERALLY.

[1343.] I wish to express my regret that you have not seen your way to comply with 'X-Tractor's' request. I can only guess at his object in making it, but after the communications we have had recently in which your family has been interested I think it is not only desirable that we should have it, but that each of you should have a distinguishing mark as well.

If 'John' sends honey to a show 'Ebenezer' gets the credit for it, and even the secretary cannot explain why; and if 'John' goes to stage the exhibits at another show the secretary says 'William' did it, so how are we to know the one from the other should we ever have the pleasure of getting their presence at a conversazione? Then again, they seem to do a family turn all round annually at puffing each other and at lodging a protest against the judges' awards; and what would be the fate of the bee-keepers of Rutherglen should they lose the services of the family is a calamity to be contemplated with alarm.

Now, Mr. Wm. McNally, the 'X' made a courteous request, when you reply to it kindly tell me which of you is 'Coffin Dick?' I would not ask if you were only two in family, but being so many of you I fear lest I should blame the wrong. I will not put my name to this, but give you further cause for exerting your powers of discrimination as to who is—AMATEUR EXPERT.

NORTH-EAST OF IRELAND BEE-KEEPERS' ASSOCIATION.

[1344.] With reference to the Show of the North-East of Ireland Bee-keepers' Association about which Mr. John D. M'Nally is so greatly concerned, and whose officials he has attacked all round, you will please allow me to point out that he misleads your readers when he writes on p. 483:—'The printed "rule" that all honey "was to be shown as taken from the bees" was ignored by many in the 1-lb. section classes.'

Mr. John D. M'Nally means that no sections should have been allowed to compete unless they were lying loose on the counter, for at the close of his last letter he points to a certain lot which like some others was contained in a plain protective or exhibition case, and from which they were easily removable by simply lifting the glass, which I saw many visitors doing.

Now when Mr. John D. M'Nally undertook to put matters right he should have given our printed rule correctly. It reads:—'In Classes 4 and 5, sections must be exhibited as they are taken out of the hive, without being ornamented, &c., with paper or any other material,' which does not touch on exhibition cases at all, but forbids the decorations that were often used to conceal rows of empty or unsealed cells in sections, and to meet which it was drawn up. And instead of there being

'many,' there was only one competitor whose sections were 'ornamented, &c., with paper,' and who told me when I was speaking to him about his mistake that it was his first appearance as an exhibitor of honey, and that he would take care not to offend again.

Now as to glass or glazed section cases, we have found them absolutely indispensable in places where bees were flying in the neighbourhood. And at one large honey show, held this year in Ulster, at which I was present, no sections were admitted unless protected by sufficiently glazed cases. I may add that the rule was necessitated by the havoc and unpleasantness effected by bees and wasps in former years, and I have read of the same being enforced at several English shows. But perhaps our Scotch censor's experience has not embraced such a contingency.

I should not have written this letter were I not desirous to see in future years both Englishmen and Scotchmen at our shows, which Mr. John D. M'Nally's letters might prevent by making it appear that we acted unjustly and partially in our interpretation of our own rules.

I wonder when Mr. John D. M'Nally is such a stickler for rules that he did not act on Rule 18 of our show, and lodge his objections to the awards of the judges in writing with the Secretary before two o'clock on day of show, when he and all others would have obtained a hearing.

Certainly the office of judge at a honey show is not a sweet one, unless he should be a fool and give a first prize to every competitor, and when any one accepts the post he knows what he may expect. But an honorary secretary and treasurer should be exempted from such a covert attack as that conveyed in this sentence from Mr. John D. M'Nally's letter at p. 483:—'I do not for a moment insinuate that I received any injustice from the hands of Messrs. McHenry and Cunningham more than any other exhibitor.'—H. W. Lett, M.A.

A QUERY FOR THE 'CHEMISTS' (OR ALCHYMISTS?)

[1345.] The 'Fumigator' and the 'Fugio' are having a battle which smells highly of the doctor's shop.

I have a fact I want to put before our two courteous debaters 'learned in chemistry.' About four years since I saw a sample of honey that, so far as looks and consistency were concerned, was everything that may be desired. It was gathered by bees placed within 300 yards of a beautiful river; the owner was above suspicion as far as management and cleanliness were concerned; he had observed his bees visiting the outflow from the stables: but when he extracted his honey he was scarce prepared for the revelation that awaited him. It stank so unmistakably of urine that my stomach even now revolts at the bare remembrance of it, and the flavour I will say nothing about. This will rather shock some of our readers I can quite understand, but truth must always have first place.

Now friend 'X-Tractor,' whose identity is so obscure as to surpass the 'cuteness of a Scotchman—a clan of Scots in fact—even though you have given your address in full on previous occasions, how about the mysterious conversion of materials in the darkness of the bee's cell in this case? And may I be pardoned if I experience both 'loathing' and 'disgust' when I see them having 'free access to chemicals?'—Amateur Expert.

ONE HUNDRED POUNDS PER HIVE.

[1346.] Your correspondent 'Sherborne, Dorset,' seems to doubt the possibility of producing 100 lbs. from a single hive, and goes on to ask those (of whom I am one) who have written saying they have done so either to confess to having added swarms to their stocks or to admit the presence of two or more queens at one time. I can most positively deny the former assertion, and can only say that if the bees have managed to raise queens by the half-dozen, as 'Sherborne' would try to make out, they have also managed to eradicate all traces of queen-cells in a most remarkable manner.

'Sherborne' seems from his own showing to be an old bee-keeper. Perhaps he can tell us to a nicety how many frames *one* queen can possibly fill with bees ready for the honey-season, and the limit of amount of honey HE says one queen can, through her workers, produce. He *says*, Who has proved that there are not more than one or two queens in a large hive at one time? We might ask him, Who has *proved* the existence of *more than* one queen? I wonder if 'Sherborne' remembers the fact that hives are frequently ready for swarming early in May, and if we take into consideration the number of bees we prevent (by giving an unlimited amount of room) from leaving the hive, whether it is not fair to assume that breeding be quite as rapid for the next month as for the one previous. Thus we should have at any rate bees sufficient for two hives in one early in June, and we are told that one large stock can gather more honey than two small ones, and in the ordinary course of things these two stocks which 'Sherborne' would have made would have wanted at least 100 super boxes during the season. I cannot see that it is too much (assuming that the stock at swarming time covers ten frames, and still covers them early in June, when the swarm would cover the same, making twenty frames) to add another twenty for super room, which would have been wanted if confined to ten frames in each case. 'Sherborne' will no doubt tell me there is no allowance made for breeding of young queens. My answer will be I have quite under-stated number of frames a stock and swarm would cover in May. Might I recommend 'Sherborne' to get a hive made which cannot possibly be too *small;* and I, though an amateur would venture to say that an old bee-keeper may 'live and learn.'—R. Sutton, *Ruddington, November 4th.*

UNCAPPED NYMPHS—OBSERVATIONS.

[1347.] When examining the brood-combs, the observant bee-keeper will notice, scattered over their surface, in a comparatively compact mass of capped brood, cells partly filled with honey, others filled with honey but open, and some containing honey and sealed, while others will contain pollen in greater or less quantities. At the same time the bee-keeper will observe empty cells, cells containing eggs, larvæ in their various stages of development, capped brood, and 'bare-headed' nymphs, scattered here and there in combs that contain, otherwise, an unbroken mass of pollen and sealed honey.

Upon scrutinising the combs alluded to above, it will be noticed that the orifices of the cells containing the bare-headed nymphs are slightly contracted, and protrude beyond their surroundings, evincing the appearance of having been left by the nurse-bees for a future finishing touch. The pupæ appear to be cocoonless.

When a cause for the 'bare-headed' phenomena is sought, the conditions and immediate surroundings in which they exist seem to call for some attention. Reasoning from effect to cause, several items present themselves for the exercise of thought as indices by which the investigator may be led to the true source of the *lusus naturæ*, for such it appears to be.

In many of the uncapped cells alluded to, the larvæ die before reaching the pupa stage, and are removed by the bees, while others reach the imago stage before vitality becomes extinct, and are removed by the bees also. In some of the cells the remains of the larvæ and pupæ will be found in all grades of decomposition, having the appearance and emitting the odour of foul

brood. When my attention was first drawn to the phenomena of 'bare-headed brood,' I attributed the cause to a defective development—stunted growth—the result of inefficient nursing, inadequate nourishment, lack of warmth, &c., behind which the constitutional stamina of the progenitors were entitled to a due share of consideration. One item in support of a defective development, so far as I have been able to ascertain, appears to exist in the fact before noted, that the bare-headed nymphs are cocoonless. If such is a fact it presents a very sound basis for the conclusion that a lack of vitality in the larvæ prevents them from performing a radical task—that of supplying the swaddling-bands required by nature during the transformation period.

I can recall but a few instances when I have seen many unsealed pupæ in colonies having vigorous queens, when the strength of the colony was properly divided between the duties of the brood-chamber and the supers. During the past season I hived about one-half of a medium-sized swarm on eight all-worker combs, a year old, from which the honey was extracted last fall. At the time for the brood to be capped, I found the four central combs a complete mass, one-half of which, at a fair estimate, was 'bare-headed.' My first thought, on observing the condition of the colouy, was, that the old honey adhering to the combs after extracting, had generated foul-brood; but as I could discern no visible evidence of the disease (other than enough to nurse conjecture), I was satisfied with the theory that the numerical strength of the colony was not adequate to the prolificness of the queen. On examining the colony afterwards, I found but few 'bare-headed' nymphs, and at the present time it is amoug my best.

Although some of the correspondents of the *American Bee Journal* are inclined to infer that a cause for the 'bare-headed' phenomena may be attributed to the presence of incipient foul brood, a close observation of its various conditions has not, as yet, convinced me that it is invariably a *vade mecum* of the foul brood disease, although it may, in some instances, be a premonition that the germs of that malady are lurking in the organism of the occupants of the hives or their surroundings. From a short and decisive experience with foul brood five years ago, I am led to think that the disease, in its round of development, occupies a position in the list of maladies accompanying bee-life of a decidedly specific character, but it may not limit its ravages to any one species of insects.

Next to the diagnosis of the 'bare-headed' (!) phenomena, comes the influence of their presence in the combs on the profit-and-loss aspect of the question. If bare-headed nymphs develop vigorous workers, they are harmless; but if a majority of them die before maturing, and the minority survive only to make puny labourers, their presence in the hive must surely result in loss to the apiarist.

Next in order is the question of prevention or cure. As I am too much of a novice to attempt to dictate a method of correction, I will suggest a prevention only, viz., Keep all colonies vigorous!—J. F. Latham, (*American Bee Journal.*)

MR. ROGERS IN REQUEST.

[1348.] Will Mr. Rogers kindly give a young hand a few hints, when making a swarm by division how to know the right time to part the hives; also how to make the Cheshire syrup; also best way to unite weak swarms; also how to introduce a new queen; also how to get a cross breed between Italians and blacks; also size of nucleus box; also how to get or make the flour candy; also how long the queens can remain together on the nucleus box?—A New Hand.

Echoes from the Hives.

Treharris, Glamorganshire.—I have taken sixty-three sections and 7 lbs. run-honey from the hive this year. I was, until this autumn (when I started a friend in this line), the only person about here with bar-frame hives, and as I have had to learn everything by experience and from the *Cottager's Handbook*, until this summer, when I commenced taking in the *B. B. J.*, I think I have done very well. I have now four hives, three of them new, and have taken 110 lbs. of honey, which I sold at 9*d.* per lb. run-honey, and 1*s.* per section.—Llancaiach.

Carlisle, October 22nd.—I meddle as little as possible with my hives. In the spring all the hives are washed out with carbolic soap and water, and food in the shape of dry sugar is given if necessary; later on syrup, or aphis honey, if I have any, this is extracted and boiled when wanted with the addition of a little water to thin it, and salicylic acid solution added. Beginning the spring of this year with nine hives and two skeps, I have had 900 lbs. of honey and four swarms, about 30 lbs. of the honey was aphidean. I had also 2 lbs. of beeswax, after melting down the section-comb in which the aphidean honey had been.—Beeswing.

Chester-le-Street, October 28th.—I take my bees to the moors every August, and in reference to the question that is asked, Can moor honey be extracted? I may say I have several times tried and always failed when it has not been a mixture of home and moor honey. I find pure moor honey in sections or supers cannot be extracted by heat. The season at Muggleswick moor this year was unfortunate, the heather was excellent, indeed; you could feel a sweet smell when walking over it, but the bees had only five good working days when it was at its best, and then a very heavy thunder shower came down and it never fairly recovered after; nevertheless, those that extracted the honey from the sections before they went did very well, a common practice with us. Although I have twenty miles to go with mine I consider I am well paid with what I have got, for my hives are all full below, but the most of the sections are only half full.—W. J.

Revlin House, Donegal, November 4th.—Now that I have everything squared up for the season of 1887—such as bees put up for winter, crates and sections cleaned and stored up for another season, accumulation of comb melted into wax, and a great many other things that are necessary to be done in preparation for another year—a few words in your valuable *Journal*, I hope, will not be found amiss. I have put up thirty-one hives, four of which are condemned bees, and two united nuclei, and am happy to say in good condition, strong, and plenty of honey. The take of honey for the season from twenty-five hives will average about 45 lbs. from each. I had fifteen hives up at the heather, with sections ready drawn out, and hives very strong, but I did not get more than forty finished sections from all, for just as the heather was in full bloom it came on wet, and continued so at intervals for a fortnight, till the blossom was all bleached. The only advantage is, getting some honey stored in the frames, as the honey-flow is principally over in the lowlands when the heather is in bloom, but it hardly pays for the trouble. I have driven a good many condemned bees this season, and generally put the bees of about five skeps into one frame-hive. I mix them together in a box, and then empty them down in front of hive, and let them run in, and there is no fighting; but if they are united to another stock *without* shaking the bees off the frames in front of the hive and mixing them with the others, no matter how both lots are scented, there will be fighting, and a good many killed. I found very few bees in some skeps, especially top swarms, although full of honey, some weighing 50 lbs., which I should think was owing to the rapid honey-flow, and cells filled with honey as they were made, leaving no room for queens to lay. My apiary is about one hundred yards from the sea, which seems to be an advantage to the bees, as no doubt they are fond of salt water.—George Turner.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

CHILLED AND DISEASED BROOD.

QUERY.—Can the putrefaction of sealed larvæ resulting from a chill be distinguished, without the aid of a microscope, from the putrefaction resulting from *Bacillus alvei?* If so, how?—C. H.

REPLY.—Chilled brood, when examined microscopically, is perfectly unlike diseased brood, the juices and tissues of the former resembling those of healthy larvæ, except that they are changing or breaking down under the action of multitudinous *putrefactive* germs. Healthy larvæ are loaded with fat, but with the beginning of an attack by *Bacillus alvei* emaciation commences, and all fat disappears by about the time of death; and somewhat later cell structure is scarcely traceable, little remaining but chitinous integuments, such as limiting membranes, tracheæ, and external skin, between which lies a dirty brownish fluid of bad but characteristic odour, and crowded with countless spores. The distinction between the effect of fatal chill and death by disease, as presented to the unaided eye by a single larva, is too slight and uncertain to determine the case with any confidence, although the appearance and smell of the comb, as a whole, would usually be a fair guide to an experienced observer. The single larva in decaying after death by chilling loses no fat, as this part of the body is least attacked by putrefaction, but most frequently changes to a greyish or blackish colour, whilst the body becomes extremely soft, a greyish fluid escaping when the skin ruptures. In diseased conditions, a buff tone, growing darker and darker until it assumes the colour of coffee, is general, and always follows an attack of *Bacillus alvei*. There are, however, diseased conditions in which browning is not a characteristic.—F. CHESHIRE.

STANDARD FRAMES *VERSUS* DEEP FRAMES.

QUERY.—I think of starting on the deep-frame system in the spring. My bees are all on standard frames now. Could any one advise me the best way to start? I find in a back number one of Mr. Simmins's stocks produced 198 well-finished sections, sixty others partly filled, and the stock combs at end of season one solid block of honey. Would this be with the standard frame or the 14 × 14 frame?—BERT.

REPLY.—With 14in. × 14in. frames I have, as yet, been unable to defeat the record of about 250lbs. mentioned by your correspondent; the same being secured with the Standard frame two years since by Mr. Luck of Felton, Northumberland, who sent me the queen.

I have put up driven bees in autumn on Standard frames of empty combs; closed up with chaff-packed dummies; a medium entrance, and warm porous covering on top, with no direct through ventilation. They were fed carefully and had young queens. Others were made up on large frames (14 in. × 14 in.) of comb, same strength, and same food, but the combs were placed to one end of hives where the wall was only half an inch thick; at the opposite side nothing protected the comb, where was a large unoccupied space, with three 2-inch holes in the side wall, and one in the centre of the floor. Communication was quite open to the roof where was ten times the space generally allowed for ventilating; the frames were covered with porous material, and yet with all this extra ventilation and no dummies, these stocks came out five to one better than those prepared as usual on Standard frames.

As the above statement shows, the deep frame is decidedly superior for wintering, and should 'Bert' wish to adopt the larger frame, he cannot do better than transfer in April—two standard combs on end—in one large frame; working a few by the side of his standard frames for a year or two, when he will be able to tell which suits his management or locality. As the deep frame takes exactly two of the standard, there is no waste, even if he wishes to return to the standard; one and the same hive also answering for either frame.—S. SIMMINS.

CUMBRIAN.—*Bees Dead and Dying.*—You should have crowded the bees on to not more than eight frames, instead of eleven; possibly through so much space being left some robbing has been going on with the usual fighting. We have had wasps visiting our apiary as lately as Saturday, the 5th inst. Did you ascertain the presence of the queen on your last examination? If you get the opportunity, reduce brood-nest to six frames, cover warmly after having removed any dead bees that may be on the floor-board. Once a-week pass a piece of bent wire through the entrance and remove any dead bees that may have accumulated. Make an inspection early in January, if a mild day occur, and feed if necessary, asking any further query you may find desirable then. Your last suggestion would make matters worse.

W. ROBINSON.—*Death's Head Moth.*—The moth forwarded is the Death's Head Moth (*Acherontia atropos*). It is very frequently found in potato fields, feeding on the leaves of that plant. For some reason that has not yet received a satisfactory explanation, it is allowed by the bees to enter their hives and plunder them of their honey; and though apparently it is quite defenceless, its ravages are permitted with impunity. 2. If there is aught of novelty in your management of skeps, the knowledge of which will be useful to bee-keepers, we shall be pleased, when convenient, to receive the communication from you.

A. E. A. EDWARDS.—*Pollen and Honey.*—There need be no apprehension of foul brood from the appearance of the piece of comb forwarded. It has the cells partially filled with pollen, with some amount of honey superposed thereon.

Business Directory.

HIVES AND OTHER APPLIANCES.

ABBOTT BROS., Southall, and Merchants' Quay, Dublin.
APPLETON, H. M., 256A Hotwell Road, Bristol.
BAKER, W. B., Muskham, Newark.
BALDWIN, S. J., Bromley, Kent.
BLOW, T. B., Welwyn, Herts.
BRITISH BEE-KEEPERS' STORES, 6 George Yard, Fenchurch St.
BURTT, E. J., Stroud Road, Gloucester.
EDEY & SON, St. Neots.
HOWARD, J. H., Holme, Peterborough.
HUTCHINGS, A. F., St. Mary Cray, Kent.
MEADHAM, M., Huntington, Hereford.
MEADOWS, W. P., Syston, Leicester.
NEIGHBOUR & SONS, 149 Regent St. & 127 High Holborn.
STOTHARD, G., Welwyn, Herts.
WEBSTER, W. B., Wokingham.
WOODLEY, A. D., 26 Donnington Road, Reading.
WREN & SON, 139 High Street, Lowestoft.

HONEY MERCHANTS.

ABBOTT BROS., Southall, and Merchants' Quay, Dublin.
BAKER, W. B., Muskham, Newark.
BALDWIN, S. J., Bromley, Kent.
BRITISH BEE-KEEPERS' STORES, 6 George Yard, Fenchurch St.
BRITISH HONEY CO., Limited, 17 King William St., Strand.
EDEY & SONS, St. Neots.
HOWARD, J. H., Holme, Peterborough.
NEIGHBOUR & SONS, 149 Regent St, & 127 High Holborn.

THE
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Editorial, Notices, &c.

PARSONS AND BEES.

For many years the two have been inseparably connected in our mind; indeed, ever since we made the juvenile error of confounding Bishop Heber with our great Huber. The power of association is so strong in the human mind that when the imagination, even erroneously, connects or associates two pictures, words, or acts, years may pass away meanwhile, yet let one of these be brought into the vision of our memory and the accompanying spectre appears also.

We read MM. Erckmann-Chatrain's tales of the Vosges mountains and their inhabitants, Alsatian pictures of pastoral life, tales of the charcoal-burners in the Black Forest, Pastor Dzierzon's discoveries, or Père Langstroth's classic on bees. We transfer the mental panorama into Poland or Sweden, Denmark or Norway, Switzerland or Austria; and, wherever we find our bees kept and tended, there we find the inevitable pastor accompanying them—'in my mind's eye, Horatio.' We see the mirage of boyhood's days:—a blind Swiss Bishop Huber or Heber, a stout Johnsonian parson, sitting in his bee garden, his head uplifted, and his sightless eyes 'all dark, irrecoverably dark,' as he listens to his bees passing to and fro; he tries to comprehend what they are saying to each other; what they say to him he knows.

Many of our bee-books are written by our parsons; and, perhaps, we are not wrong in saying that almost half the current bee-literature is penned by them. We are quite convinced that we owe the advances made in bee-keeping, from the hollow log, the hive of staves, the earthen tube, and the straw skep, to the scientific appliances of our own time, more to our clergymen (or, as we prefer to call them, the parsons) than to the rest of the fraternity combined.

In most rural districts, where the art has lingered and 'dragged its slow length along' (a truly living death) by reason of the crass ignorance of the bee-keeper and the pigheadedness of bee-keeping traditions, such as gave rise to the 'ken-mair-aboot-bees-than-onybody' phrase, it is the parson, whose higher cultivation and perceptive faculties placing him *au courant* with what is passing in the outer world of apiculture,—it is he who takes the first plunge in modern bee-keeping and who bears the brunt in the battle of new fangled *versus* antiquated notions. It is the parson who persuades Farmer Hobbs (1) not to smother his bees; (2), to super skeps; (3), to drive; and, finally, to use frame-hives, artificially swarm, and the rest of it. The prime mover in elevating the moral tone of his people by lectures on bees and bee-keeping, and other subjects, the promoter and indefatigable Hon. Sec. of the County B.K.A. is none but he. If we look over the list of members of our national Association, we find over fifty of them clergymen; and at our Conversaziones we are favoured by a very fair proportion indeed of the clerical element.

Bee-keeping, as it is taught to-day, is thus greatly indebted to them individually and as a body, for the higher tone imported into it by the intelligence they bring to bear upon the science. There is a *je ne sais quoi* of deep, plain, practical, truthful examination and trial, 'ringing out the old, ringing in the new,' fads, about their connexion with scientific bee-keeping, that cannot fail to be distinctly elevating to all who thus come into contact with them. This elevation of tone or sentiment is contagious, and we find almost all our bee-literature pervaded by it. There is a gentlemanly and courteous treatment of opponents in theory, and of those who differ in practice amongst bee-keepers, which is conspicuous by its absence in the correspondence columns of many other journals of science. Under the beneficent influence of the parsons amongst us, we feel that, in no small degree, are we under obligations to them; our very language in argument, as well as in written controversy, is modified when we remember of whom and with whom we are disputing. Perhaps, the influences of the clerical element upon the rest of the bee-keepers with whom they came into contact may be best illustrated by comparing it to that of the presence of ladies at assemblies, or to the refining, elevating effect produced by sisters amongst brothers. Vigorous and courageous as we know our brothers are, both in *viva voce* discussions and with the pen, we shall in no way disparage such estimable qualities, yet, it may be, that a judicious restraint is often put upon tongue and pen when tempted to write or say something peculiarly smart and cutting, by the feeling that we should be attacking, and perhaps wounding, one who, by the

virtue of his Christian office, is precluded from putting down aught in malice and replying with an exhibition of similar spiteful or poisonous darts. We know how the namby-pambyism and conceited affectation of girls are rubbed off by daily mixing with the brethren of the family, and, though we have said so much in praise of our parsons, we cannot help thinking that, were it not for their repeated contact with their brethren, bee-keeping would degenerate into the simple pastoral pursuit it once was, instead of becoming, as it rapidly is doing by the mutual efforts of both, a flourishing industry.

So, under the benign tempering beams of the clergy of all denominations may bee-keeping continue to make rapid progress in the future, as it has done in the past years of the Queen's reign.

THE STRUCTURE OF FLOWERS WITH REFERENCE TO INSECT AID IN THEIR FERTILISATION.

(*Continued from page* 492.)

I will now direct attention to another very successful arrangement for promoting cross-fertilisation through the agency of insects. Probably many have noticed the primroses (*Primula vulgaris*) present different appearances with regard to the stamens and pistils. In some the pistil is found at the top of the tube and the stamens half way down; in others the stamens are at the top of the tube and the pistil half way down. Corresponding differences may be seen in the cowslip (*P. veris*), polyanthus, and auricula. This difference in the form of the flowers has long been known by the homely names of 'thrum-eyed and pin-eyed.' Plants which present these differences of form are known as heteromorphous; those which have two forms of flower, like the primrose, as dimorphous; and those which have three forms, as in *Lythrum salicaria* (Purple Loosestrife), as trimorphous. Sprengel, as Darwin mentions, had noticed this difference in form in *Hottonia* before 1793. 'Sprengel,' writes Darwin, 'with his usual sagacity adds that he does not believe the existence of the two forms to be accidental, though we cannot explain their purpose.' Trimorphism was noticed by Vaucher in 1841 and by Wirtgen in 1848. It was left to our great naturalist, Charles Darwin, to interpret in the journal of the Linnæan Society, 1862, this curious phenomenon.

Referring to dimorphism in the case of the primrose, Sir John Lubbock observes, 'An insect thrusting its proboscis down a primrose of the long-styled form would dust its proboscis at a part which, when it visited a short-styled flower, would come just opposite the head of the pistil and could not fail to deposit some of the pollen on the stigma. Conversely, an insect visiting a short-styled plant would dust its proboscis at a part further from the top, which when the insect consequently visited a long-styled flower would again just come opposite the head of the pistil. Hence we see that by this beautiful arrangement insects must carry the pollen of the long-styled form to the short-styled, and *vice versâ*.' Mr. Darwin has shown that much more seed is set, if pollen from the one form be placed on the pistil of the other, than if the flower be fertilised by pollen of the same form, even taken from a different plant.

This eminent naturalist, in his interesting work on the forms of flowers, after giving a minute and graphic description of trimorphism in the case of *Lythrum salicaria* (Purple Loosestrife), observes, 'In a state of nature the flowers are incessantly visited for their nectar by hive or other bees, various Diptera and Lepidoptera. The nectar is secreted all round the base of the ovarium, but a passage is formed along the upper and inner side of the flower by the lateral deflection of the basal portion of the filaments; so that insects invariably alight on the projecting stamens and pistils, and insert the proboscis along the upper and inner margin of the corolla. We can now see why the ends of the stamens with their anthers and the end of the pistil with the stigma are a little upturned, so that they may be brushed by the lower hairy surfaces of the insects' bodies. The shortest stamens, which lie enclosed within the calyx of the long and mid-styled forms, can be touched only by the proboscis and narrow chin of a bee; hence they have their ends more upturned and they are graduated in length, so as to fall into a narrow file, sure to be raked by the thin, intruding proboscis. The anthers of the longer stamens stand laterally further apart, and are more nearly on the same level, for they have to brush against the whole length of the insect's body.

'I have found no exception to the rule that when the stamens and pistil are bent they bend on that side of the flower which secretes nectar. . . . When nectar is secreted on all sides they bend to that side where the structure of the flower allows the easiest access to it, as in *Lythrum*. . . . In each of the three forms two sets of stamens correspond in length with the pistil in the other two forms. When bees suck the flowers the anthers of the longest stamens bearing the green pollen are rubbed against the abdomen and inner sides of the hind legs, as is likewise the stigma of the long-styled form. The anthers of the mid-length stamens and the stigma of the mid-styled form are rubbed against the under side of the thorax and between the front pair of legs. And, lastly, the anthers of the shortest stamens and the stigma of the short-styled form are rubbed against the proboscis and chin, for the bees in sucking the flowers insert only the front part of their heads into the flower. On catching bees I observed much green pollen on the inner side of the hind legs and on the abdomen, and much yellow pollen on the under side of the thorax. There was also pollen on the chin, and, it may be presumed, on the proboscis, but this was difficult to observe. I had, however, independent proof that pollen is carried on the proboscis, for a small branch of a protected short-styled plant (which produced spontaneously only two capsules) was accidentally left during several days pressing against the net, and bees were seen inserting their proboscides through the meshes, and in consequence numerous capsules were formed on this one small branch. . . . It must not, however, be supposed that the bees do not get more or less dusted all over with the several kinds of pollen, for this could be seen to occur with the green pollen from the longest stamens. . . . Hence insects, and chiefly bees, act both as general carriers of pollen, and as special carriers of the right sort.'

A long series of experiments proved that both kinds of pollen are nearly or quite impotent upon the stigma of the same flower, and that no ovary is fully fertilisable in any other manner than by stamens of the corresponding length. *Nesæa verticillata*, a common lythraceous plant of the Atlantic United States, is, according to Dr. Asa Gray, similarly trimorphous. Several South African and American species of Oxalis are trimorphous, and have been investigated by Darwin and Hildebrand with the same result as in *Lythrum salicaria*. Referring to trimorphism, Mr. Darwin observes in one of his valuable works as follows:—'Fritz Müller has seen in Brazil a large field many acres in extent covered with the red blossoms of one form (of an Oxalis) alone, and these did not produce a single seed. His own land is covered with the short-styled form of another species, and this is equally sterile, but when the three forms were planted near together in his garden they seeded freely.' 'All known flowers,' writes Dr. Asa Gray, 'exhibiting reciprocal dimorphism or trimorphism are entomophilous' (insect fertilis-

able). No such wind-fertilisable species is known. Few of them are irregular, and none very irregular; they do not occur, for instance, in *Leguminosæ*, *Labiatæ*, *Scrophulariaceæ*, *Orchidaceæ*, &c. Nature is not prodigal, and does not endow with needless adaptations flowers which are otherwise provided for.—W. G. Wheatcroft (*The Journal of Microscopy*).

(*To be continued.*)

Selected Query.

[1.]—*Have you used slotted dividers between the sections, and what is your experience with them?*

I have extensively used slotted dividers with four bee-way sections this last season, and find that in conjunction with such sections there is a trifling advantage gained in the nicer manner in which the side cells of the comb are filled; but I consider the amount of this advantage is not sufficient to warrant advising any bee-keeper going to the expense of supplanting their present plant of dividers. They—slotted ones—are also very likely to get damaged in the hands of any one the least careless, bending, and, with brittle metal or wood, breaking just where the slot almost meets the hollow cut out at top of divider. When propolised, they require great care in removing.—W. B. Webster.

I have had this year, in constant use, over 1000 slotted dividers between sections, and found them simply perfection. The sections were all open on four sides of different width, 1½ and 2 inches wide. The bees seemed to build out their comb up to and over the wood of section edge, and also filled more quickly than with the plain divider. I think, before judging finally, I should prefer to give them another season's trial. Care must be taken in using them, as they are very apt to cut the hands when cleaning to put away at end of season.—Wm. McNally.

I prefer slotted dividers between the sections that have to be glazed, better than wood: but a space should be left at the bottom and the top for the bees to easily get to the sections, the same as in the wood dividers.—William Carr.

Do not use separators.—Samuel Simmins.

Yes, very extensively; and found that the sections were more evenly and rapidly filled than with any other dividers.—G. J. Buller.

Yes. If there is a space left between the sections so that the bees going through the slot in the dividers can pass along and cluster round all the sections in the case, as they can do in that illustrated on page 128 of this year's *Bee Journal*; or when Lee's patent sections are used, which provide passage-ways, then there is a great advantage in using slotted dividers. If the ordinary section-case is used, or the one illustrated on page 59 of the present *Journal*, with slotted dividers, then the bees going through the dividers, being stopped by the edges of the sections touching each other, leave more pop-holes in the sections for the purpose of clustering and passing than they would where solid dividers are used.—John M. Hooker.

Using slotted zinc-dividers last season, I obtained the centre sections with neither better fit nor finish than when using the old pattern wood divider, with the sections closely encased in crate; but the fact of centre sections always turning out the best, pointed that not in centre of crate were extra passages necessary, but that passage around outside sections would be beneficial, producing more even work throughout the whole crate, and the result in trial was as anticipated. This outside passage *only* is not so practicable with any section as the 1¾-inch for bee-way, worked without dividers; and trials as to the better methods have convinced me that bee passages, other than around outside sections in crates of three sections wide, to be bad economy in the service of bee life for sectional honey production.—J. H. Howard.

I have used the slotted dividers with bees, and other sections, having passage-ways on all sides, and have found them answer perfectly, the sections produced being evenly worked and free from loop-holes at the corners. This, however, was during a copious honey-flow, when only perfect sections, as a rule, can be obtained. It is most important that the bees should have, at all times, the free communication between the sections, which slotted dividers afford.—George Raynor.

MY BEES.

By Mrs. Reginald Bray,

Author of 'Family Feats,' 'Ten of Them,' 'We Four,' &c.

'No mirth, no cheerfulness, no healthful ease,
No comfortable feel in any member;
No warmth, no shine, no butterflies, no Bees,
November.'

Chapter I.—A Dream Fulfilled.

'Have you any fancy for keeping bees?' said a kind neighbour to me one day as we were walking round the garden one summer day in June.

'Any fancy?' Why my whole heart leapt within me. 'Bees!' why it had been the desire of my life from the time I had been a little child, when I used to pore over an old book in my father's library called *My Bee Book*, probably quite antiquated and old-fashioned in its ideas, but to me a very fairy-land of delight.

'Because,' continued my neighbour, little dreaming of the ecstasy of delight which I was concealing under a calm exterior, 'I have a number of hives at my place in the country and am thinking of sending for some, so if you like I shall be delighted to give you some.'

I could scarcely gasp my thanks. Was the sky ever so blue before? Was the sun ever so bright? Was my life-long dream now going to be realised? I had occasionally had faint dreams of hives in sunny corners and the hum of bees among the flowers; but I knew not how to start them or where to procure a swarm. Indeed, I knew very little more than what I had gathered in the days of my childhood. Sometimes, indeed, I had remarked to my gardener that it was a pity we could not keep bees, and he being a kindred spirit fully agreed; but our garden, a lovely old-fashioned one, was in the suburbs of London. I did not know of a hive in existence in the neighbourhood, and so I had to give up the wish, which until this moment never seemed feasible.

'The only difficulty,' continued Mr. Graham, 'is that I am not fond of bees myself, and have a wholesome horror of being stung. My wife has a fancy to keep them, but I do not know whether it is possible to move them at this time of the year, nor how it is to be done.'

'I will ask Watson,' I replied; 'for he used to keep bees in the country, and understands something about them.' He was summoned to the conclave, and said that it would be possible if they were tied up in sheets at night, but it would be impossible to move them by rail.

'Very well,' said Mr. Graham; 'it is only about twelve miles; I will send one of my carts, and they shall be driven down all the way.'

Matters were soon arranged. Watson and Mr. Graham's man were to go down by rail, and as soon as the bees had all come in from their day's work and had retired for the night they were to be tied up in sheets and transported to their new homes. The hives, of which I was to have three, were all old-fashioned straw skeps. No one had taken any interest in them for years.

The bees had come and gone at their own sweet will; queens had lived and reigned and died; swarms had gone forth to new colonies; honey had been stored and eaten by themselves alone; and now they were to be rudely

disturbed from their elysian fields and brought to the suburbs of London amid the bustle and the din of man. Poor bees!

The day came at last which I had been awaiting with an impatience scarcely concealed.

Had we known more, I should have been very anxious, but it is a fact that sometimes 'ignorance is bliss,' and that 'fools rush in where angels fear to tread.' Happily we had not then studied the subject, and little we knew of the danger and difficulty of moving hives in the middle of summer, heavy with honey-laden comb, and weighing possibly as much as forty pounds. I have wondered since that they all came safely to hand, especially when I read how necessary it is to push wooden skewers into the sides of the hives so as to support the combs, and how this ought to be done two or three days before moving, as the bees would then make them fast, and they would not give way. Also that the hives should be turned upside down, which would cause less strain upon the comb, for if in the move the combs broke and fell, then woe betide your bees! All this and much more we knew nothing about, and our great success was mainly due to the fact that the hives were so very old that the comb was probably extremely strong and tough, and therefore stood the journey, which was made with due care at a foot's-pace.

Never shall I forget the moment when I stood in front of my three hives on their new stand in the sunniest corner of the garden facing the south. I gazed at them with a feeling of respect, for I knew not then that bees could be handled with impunity. The bees flew in and out with joyful sound, caring nothing about me (the most loyal subject of the queen-bee that surely ever existed). One garden was as good to them as another as long as flowers and nectar existed. The distance being great, there was no risk in having changed their place of abode, for beginners must remember that bees must not be moved any short distance in the summer, or they will invariably return to their old homes, and, finding their hives gone, will fall down and die.

The bees looked most flourishing, the multitudes which hurried in and out showed that they must be very strong, and I was immediately possessed with the idea that they would be sure to swarm soon. I had heard of swarms coming out and being lost before you had time to take them. What a terrible idea! there was not an hour to be lost, they might swarm at any moment, and I had not a spare hive. I must drive instantly up to London and place myself in readiness for my swarms. The question now was, 'Where should I go?' I had never heard of the *British Bee Journal*, that most absorbing of all papers that has ever been brought out. I knew not even where I could purchase a hive. I looked in the *Field*, but of course that week no one had advertised a hive. Some one suggested Messrs. Neighbour. The very thing. I knew them by name; who does not? and, ordering the carriage, I drove hastily to Regent Street.

Next to the pleasure of the bees, I think it is to see on each side of you the various hives and appliances for bee-keeping. A new world seemed opened to me as I saw the different hives,—skeps with glass windows, bar-frames, which were to me as yet a mystery, and very incomprehensible they looked with their sections and supers. Indeed, I thought that it would be impossible for me ever to understand the working of them, little knowing how extremely simple it is when you have once been properly shown.

Accordingly I modestly contented myself with a straw skep of excellent make, and one with little windows at the side, so that I could look in and see the bees at work.

With my hive in the carriage my heart felt lighter, though sundry misgivings would come over me that the bees might possibly have swarmed in my absence. It seemed as if they would be certain to have taken advantage of my 'being out.' Happily no such misfortune had occurred, and the bees were flying in and out with as peaceable a mind as when I had left them.

One extra treat I had provided myself with, and that was the *British Bee-keepers' Guide-book*, by Thomas Cowan, and *Modern Bee-keeping*, published by the British Bee-keepers' Association. With what feelings of delight I sat down to peruse these treasures I need not here describe.

In case, however, any of my readers have not had a like treat I will give a short description of the queen and her subjects.

First of all, we will commence with her majesty, or, as she is sometimes called, the 'mother bee,' because she alone, with some rare exceptions, lays all the eggs from which the bees are produced. It will scarcely be believed that during the spring and early summer she will lay two or three thousand eggs a-day.

It is very easy to recognise the queen, as she has a long thin body, and shorter wings than either the drone or worker-bee. Each egg is deposited in one of the cells, and in three days it hatches into a small white grub, which is carefully fed upon a mixture of honey, pollen, and water.

The grubs are fully grown in about five or six days, and are then sealed over in their cells by the worker bees. The grub spins itself a cocoon in which it remains for three days, when it becomes a nymph. At the end of seven more days, or twenty-one days from the laying of the egg, it emerges a perfect bee. The queens and the drones pass through similar changes, but the queen takes only fifteen days to develope, whilst the drone takes twenty-five.

The workers are a much smaller bee than the queen. They build the comb, gather the honey, and feed the grubs, and so busy are their little lives in the summer that they only live about six weeks, so it is very necessary that the stock of bees should be constantly replenished by the queen.

The drones are the males, and are produced at the beginning of the swarming season. They have no stings, and are turned out by the workers in the autumn when they are no longer required. The presence of drones in a hive is usually a sign that swarming is likely to take place.

A queen may live four or five years, but it is best to replace her when she is about two years old. The workers have it in their power to raise a queen whenever they consider it desirable, and they can even turn the grub into a queen so long as it is not more than three days old. This appears to be done by simply enlarging the cell and giving food in greater abundance. A queen-cell can easily be known as it projects and hangs down like a small acorn.

The more I read the more interested I became. The possible failures never entered into my head. *My* bees were sure to do well. They would yield me an immense quantity of honey. I should supply the whole household, and sell the remainder to my friends. Honey was 1*s.* 6*d.* a pound in those happy days; and I began to calculate how soon I should be able to pay off all expenses of extra hives that I should require, and begin to make my fortune.

I may as well remark here that my household is extremely fond of honey, and up to this date they have recklessly consumed every pound of honey that I have had.

My schoolboys suggested that it would be very nice to have some to take to Harrow, but I nipped this idea relentlessly in the bud, and murmured something about the difficulty of packing it.

I rejoiced greatly in thinking that I should no longer be dependent upon exterior sources for my honey, from which I had suffered greatly. One year a friend in Scotland gave me a delightful account of the beautiful heather honey, which, in out-of-the-way places, could be purchased for 3*d.* a pound if you took the whole hive. I promised to share a hive with her, and in consequence did not lay in my usual large stock of honey in the autumn.

Well! my friend came south, and I waited long and anxiously for my honey. It never came, and at last I wrote and inquired after it. It was somewhat vexatious to hear that her family had found the honey so good that they had kept it all for themselves.

The following year I determined to do better. A sister was going to the Highlands, and I felt that upon her I could depend. She did not fail me; but, alas! the hive was sent by sea packed with a large quantity of Scotch oatmeal, and somehow—it was never discovered exactly how—the honey and the oatmeal got mixed and arrived an indescribable mash.

The next year I determined to have nothing to do with any more Scotch honey, so I bought a great quantity from the poor people in the country, and was quite satisfied though it was not Scotch honey. Unfortunately another sister went to Scotland on her wedding tour, and so temptation fell in my way once more.

Knowing my weakness for Scotland and everything Scotch, and especially heather honey, she wrote to say that the most beautiful honey was to be bought from the people there, and that the landlady of the hotel where she was could get me any quantity.

Now I own that there was a certain interest connected with that same hotel at Rowadonan, on the shores of Loch Lomond. I had been there on my own wedding tour. The landlady was a personal friend of mine, as she had been housekeeper to some old friends, and, above all, Scotch honey—everything Scotch—always seems to me so infinitely superior to anything else.

I could not resist, and gave a somewhat large order; and, determined that nothing should go wrong, arranged to have it sent direct to me, thinking that the low price of the honey would make up for the carriage.

By-the-bye, I did not ask the price of the honey, taking for granted it would be about 3*d.* a-pound. I was somewhat startled by the amount I had to pay for carriage, but the honey was first-rate, and the household showed its appreciation of it by eating it up twice as fast as usual. It gave me quite a pleasure to see how that honey was appreciated.

Then the bill came in.

I opened it; I looked at it, and I sadly shut it up again.

The worthy landlady had lived in England. She knew English prices. She would not like to charge a newly-married couple anything but the top prices.

The honey was two shillings a-pound!

That was the last Scotch honey I ever bought.

(*To be continued.*)

Mr. W. Couse, Secretary and Treasurer of the Ontario B.K.A., desires to acknowledge with thanks the receipt of two books forwarded by 'Amateur Expert' as an addition to their library, viz., from Dr. Bartrun a copy of his pamphlet *The Stewarton Hive*, and Thorley's *Female Monarchy*, presented by Mr. John Walton.

THE USE OF THE POSTERIOR LEGS OF THE WORKER BEE.—They aid in walking; they sustain an enormous weight when bees cluster; they gather, transfer, and carry the nitrogenous food (the pollen) and the propolis; they grasp and carry forward the delicate wax scales, and aid to clean off the pollen as the bee frees its legs of this substance when the latter is pushed off into the cells of the comb.—PROFESSOR COOK.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* MR. J. HUCKLE, *Kings Langley, Herts (see 2nd page of Advertisements)*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

OUR HONEY IMPORTS.

The value of honey imported into the United Kingdom during the month of October, 1887, amounted to 668*l.* [From a return furnished by the Statistical Department H. M. Customs to E. H. Bellairs, Wingfield, Christchurch.]

COMPLIMENTS TO EDITOR.

[1349.] I am pleased to hear of your safe return from Canada and America in such good health, and that you have so much enjoyed your journeyings. The marvel to me is how you have done so much, for you tell us of visiting Mr. ——, and after him Mr. —— hundreds of miles distant, and other bee-keepers more distant still; looked over their workshops, their apiaries, their indoors; and all this to be stored up for our benefit, and so much information about bees and bee-keeping as carried on in those States by the leading men.

I have been greatly interested in reading your first *dole* of your tour and shall look for a further. You can tell us much on plants and flowers, and I hope to hear you enlarge upon the subject of bee-forage in the States you have visited. Such could not fail to interest, and so possibly draw out from the rich store-box of others here a little which might help to fill a vacuum in that of the less favoured; besides, to say the least, it would be a *sweet* subject, *sweeter* than one we have been treated to of late in the *Journal*. Oh! by the bye, did you go bee-hunting whilst out in the wilds—I mean *real* bee-hunting, out in the woods hunting for wild bees? If so, please tell us all about the sport, and if you found the bees in any way different to yours at Horsham. Now I have my pen in hand I may just remark I note your editorial, 'Bee-keeping as a livelihood,' in your issue of Nov. 3, and with you I wish bee-keepers of practical experience would, for our guidance and benefit, give us their frank opinions upon the subject, *especially* as to the business being a remunerative one at the quotation you give for good English honey; if they would so, I venture to predict the result of such opinions would not be your figure.

Would that I could convert you to my views as to a paying price to the producer for good English honey, but *please don't* continue to educate the public to look for a downward price. I question if that course is one calculated to increase the consumption. We don't eat two loaves of bread instead of one because the price is low. No, rather educate the public to the use of honey, and they will be content enough to pay a fair price for it. Pray don't think me a grumbler and a fault-finder, but I am really tempted to wish I had had the manipulation of the type for one portion of your editorial, or rather had been at the elbow of him who had, I would just have *honied* him up to my figure (9*d.*), and your sour 6*d.* would most certainly have appeared *tail down*.—R. R. GODFREY, *November 7.*

WINTER PASSAGES, &c.

[1350.] In last week's 'Useful Hints' (p. 490) Mr. Langstroth's advice is quoted of cutting holes one inch

in diameter for winter passages: such holes, if left intact, would, in the writer's opinion, be unsightly and wasteful. Our practice is to cut holes about half an inch in diameter; and this may easily be done with a piece of brass tube, the end slightly notched, so as to cut cleanly when a screwing motion is imparted.

Whilst on this subject, it would be interesting to know why Eastern races, particularly Syrians and Palestines, insist on pushing up the quilt and building columns and irregular-shaped pieces of wax between it and the top of the frames, about an inch high; it is not usually from want of room, although strong colonies do it most to perfection. Another (old) method of spacing frames, and at the same time diminish the circulation of cold air, is by pushing $\frac{3}{4} \times \frac{5}{8}$ fillet of deal between the side bars of frames.

Allow me, in conclusion, to congratulate the Editor on his announcement that the pages of the *Journal* are to be enlivened by the experiences in bee-keeping of so popular an author as Mrs. Reginald Bray.—JOHN EDEY, *St. Neots.*

SUNFLOWERS, POKER LILIES, FUCHSIAS, AND BEES.

[1351.] As notes on bees and flowers are interesting to all bee-keepers as well as naturalists, I offer a few that I have set down during the autumn that has just passed. What I record may be known to some of your readers, but I have not been able to find the facts in any book on bees that I have consulted.

1. *Sunflowers.*—My observation of these extended to about one hundred plants in my own garden. These were all in fine bloom for nearly two months, and while they were frequented by humble bees in crowds, it was very rarely that I saw a honey bee on one of the flower-heads. I am aware that this plant is put in the lists of bee-flowers, and extolled by some for the aid it affords the bees by yielding pollen late in the year. Now I have been watching the sunflower for several years in order to settle this point, and I have come to the conclusion that it is a 'delusion' for either honey or pollen, just as much as its fabulous habit of turning its face to the sun is a groundless poetical legend.

2. *Red-hot Poker Lily.*—Never before have I seen so many and such fine spikes of the bright flowers of the *Tritoma uvaria*—red-hot poker lily—as were in my flower garden this season. The long dry summer seems to have agreed with them, for some plants produced as many as thirty-three huge 'pokers,' and they came in succession from the end of August to the close of October, and all that time, early and late, my bees were at them for both honey and pollen. This lily secretes large quantities of nectar, which my bees did not allow to go to waste. In former years I noticed that this plant was a great favourite with wasps; however, as I wage a ceaseless war against the 'yellow boys' they do not get leave to carry all before them on my glebe, and consequently few were observed this year on my Tritomas.

3. *Fuchsia gracilis.*—There is a hedge fifty yards long composed altogether of this common fuchsia in my garden, which bloomed profusely all September and October. It was a splendid sight with the Tritomas and Sunflowers in the foreground; and which, like the 'red-hot pokers,' was haunted every fine day from morning to sunset by hundreds of my bees. I had often heard it said that honey bees would not touch a fuchsia, and I once was present at a discussion over a collection of bee-flowers in a honey and bee exhibition as to the fuchsia being admissible in such. But now I am convinced that this graceful and beautiful plant is one of the best autumn flowers that can be cultivated for bees. There is no plant more easily and successfully grown than this *Fuchsia gracilis*—more so than *F. globosa*, while it is fully equal to the latter in being an ornament to the garden.—H. W. LETT, M.A., *Aghaderg Glebe, Loughbrickland, Co. Down.*

HOW TO DO IT.

[1352.] So, 'Mr. Sherborne,' you do not believe that one queen is able to produce bees to cover forty frames and yield 100 pounds of honey in a season! Well, there are many like you; and I know to try to convince a bee-keeper (as you say you are of twenty years' standing) by force of argument is hopeless. I think the better way will be to tell you how to do it, so as you may see it with your own eyes.

1. *Wintering.*—You say they will not cover five frames by November 1st. I could show you them crowded on the 8th and 9th inst. and nearly $\frac{3}{4}$ inches between frames. They have not got bees added, and one of them yielded 150 pounds of honey the past season, but it is not always the hive that is strongest in November that is strongest in June. But that is not telling you how to do it. First leave in more frames than they can cover and have them stored with as much food as will serve them till June. Bees that have well-stored combs always rest best and conserve their strength. Have these frames set $\frac{3}{4}$ inches apart and place a small piece of tablet on top of them to form a roadway from frame to frame. In case of severe weather cover with a leather-cloth quilt; place a sack or tuck over it, and a good chaff-cushion over all, and take out the doors and do not touch them again until the first week of April at the earliest. But during the winter months you had better see that you have a hive suitable; mine are made of four boards one inch thick, nailed together. $14\frac{1}{2} \times 16 \times 9$ inside measure, and hold eleven frames. I got these from the saw-mill cut to size at 2*d.* each; four of these make a hive; they have no plinths and set on top of floor-board. Floor-board is kept up $\frac{3}{8}$ to form a doorway, and this shuts up the door of next storey when it is put on bar-wood, which I get at 6*d.* per 100 feet, and that makes bars for three storeys.

2. *Spring.*—First good day in April examine all hives and cut open some honey down the side of centre frames, and set the frames up $\frac{3}{8}$ inch between and cover all up closely again. I am presuming that you have seen brood or eggs, and if so the less they are handled in April the better. The first week of May, this is an important time, as the work of the season commences with this month (I am writing from a district where the clover comes into bloom about the third week of June), this is the time to know if hives will be ready for the clover, as they may be said to have passed the lowest point and will rapidly increase. The test is, that they have four frames full of brood and eggs at this time; if they are young combs and not pollen-clogged they will contain about 20,000 young, which will all be hatched in three weeks; but to assist them to cover more brood we at this time shift all frames up to $\frac{1}{4}$ inch apart, cutting down any irregularities of the comb. To admit of this, hives will now need weekly attention, cutting open honey, feeding where stores are running short (I do this by pouring syrup into the combs from a vessel with a small spout, giving a good feed at a time), and adding frames as bees can cover until we have twelve and sometimes thirteen frames into a eleven-frame hive, which will be crowded with bees and brood by the time clover comes into bloom. If 'Sherborne' will try the foregoing plan he will be astonished at what bees can do. Of course if he uses metal ends he will have to throw them away.

3. *Summer.*—Place a sheet of perforated zinc on top of the frames *flat* and put on another storey with eleven frames with comb or foundation. Still keep on chaff-cushion, and when bees have fairly commenced to work in second storey wedge up both hives at least $\frac{1}{2}$ inch all round. When the top storey is commenced to seal, raise it up and put another in between; and when it has began to seal put another in beneath it; and if the season is at all good you will see bees from one queen cover forty-five frames.—JAS. SADDLER, *Forfar.*

ONE HUNDRED POUNDS PER HIVE.

[1353.] In reply to 1346 of last issue it may interest 'R. Sutton' to know that some time ago I had a stock of cross breed (Ligurian queen crossed with black drone) bees. There were twenty combs of Standard size, fourteen of which were filled with brood at one time, and I never saw two queens at one time in this stock. I thought it rather remarkable, and I mentioned the fact to Mr. C. N. Abbott, who paid me a visit, and that gentleman informed me that he once had himself a queen which covered sixteen frames of Standard size at the same time. I cannot say how many Standard frames the brood contained in fourteen combs would cover when hatched, but suppose there would be sufficient bees in such a hive to cover forty frames in warm weather.—THOMAS F. WARD, *Highgate, November* 11.

WHAT BEES CAN DO.

[1354.] I take this opportunity of thanking you for your great kindness in giving us so much useful and practical information. I am sure all bee-masters feel greatly obliged by your very interesting description of your visit to Canada and the States. Our cousins seem to do things on a very large scale in bee-keeping, but I was greatly surprised at the amount of honey per hive, for, setting aside a few cases where a large crop was obtained, I think we on this side of the Atlantic should take courage in the fact that we are not to be crushed by a greater weight than we can produce ourselves. I quite anticipate many veterans in the craft will tell us of far greater things as regards production of honey. But what we want, Mr. Editor, to make the outlook brighter is, I think, better facilities for disposing of the production of the apiary.

I should be glad if we had more in the *Journal* from the pen of our fathers—those who were at the christening, and have watched over, tended, and cared for the bee-keeping interest, until it has grown up to this big youth who is able to stand his ground and show as good a front as his big brothers over the water.

I should here like to give a few facts in connexion with my own experience, if not thought to partake too much of the American, Mr. Editor. I hope they may tend to convince some who are, like Thomas of old, very hard to believe. I must say I am greatly astonished to find that any one that had had twenty years' experience with bees could write such perfect nonsense about a number of queens in the same hive at the same time. Let him listen to the following and be not unbelieving. I have taken for the last seven years an average per hive of 112 lbs. of honey, one seventh of this was comb-honey, for the entire apiary (which is considered a large one).

My hives have in summer not only forty frames, but forty-two, Woodbury size. These are filled with bees, and produce the above result, without the assistance of any other hive or queen, all by the middle of July, which closes my honey season, after which time the bees make up their stores (for I never use any syrup), and I stimulate with combs of sealed food taken from the hives when reducing the hives to eight combs for winter; this I do in September. I find it no gain to have a large number of bees in the fall, for I do just as well with six combs as with eight or more. The point is a good young queen. I requeen my apiary every two years, that is, half this, the other half next.

I can open his eyes a little wider by just giving him the result of two hives this year, without any assistance from any other hive. The first hive was on forty-two frames, Woodbury size, and had a last year's queen. It gave me 217 lbs. of extracted honey and four full combs when reduced for winter. (I believe this hive had a bushel of bees in it at one time.) The other hive was worked for comb-honey solely on Simmins' principle. It was on sixteen frames, which I reduced to twelve, then put on the sections. This hive gave me 194 lbs. finished fit for market, and gave me three bars weighing 15 lbs. when I reduced them for winter. I would say here this hive never gave any sign of swarming. It was well shaded by a large tree, and I gave it plenty of room with crates.

I should like to give my experience with mixing bees. First, if the bees are standing near each other, push a piece of camphor in each flight-hole over night; next evening uncover the hives, lift the combs with bees from one hive and place them in the one you wish to retain, taking away all spare combs, cover up, the thing is done and not a bee lost. If you are afraid of bees you can use a little smoke, but this I seldom do in my apiary.

To move and mix bees, put a piece of camphor in each flight-hole over night, next afternoon shake all the bees from the combs into their respective hives, cover up for a few minutes, set one of the hives where you wish it to stand; now put into it all the combs containing brood, and as many more as you wish, shake the bees from the other hive on to a board or cloth in front of the selected hive; there will not be a bee lost by fighting or by going back to the old stands any more than if they had been moved when swarmed.

This plan is very much better than drenching the bees with scented syrup, to be half lost when cold follows; and then it saves the shifting the hives a few feet every day, and may be practised any time when bees can fly.—AN OLD BEE-MASTER.

'IN THE HUT.'—'X-TRACTOR' AND 'AMATEUR EXPERT.'

[1355.] Kindly allow me a little space in reply to your correspondents in the *B. B. J.* of the 10th inst., page 495, who write under the above *noms-de-plume*. Though the controversy does not tend to edification, nevertheless, I will not lay myself open to the charge of *discourtesy* by not replying even to 'X-Tractor.' Anonymous correspondents ought to be the last to request family histories and relationships from those who always append their names to contributions. If I do write decent English unadorned by Shakspearian scraps, my style, I hope, savoureth not that of *United Ireland*. The *B. B. J.* is not a humorous paper, and does not go in for *jokes*, as 'X-Tractor' would seem to think, although his most serious communications would raise a smile on the face of an Egyptian mummy who made bee-culture his hobby four thousand years ago. As to the genealogies of the McNally family 'are they not written in the book of Jesher?' a valuable chronicle of reference, now supposed to be lost. 'X-Tractor' desired information from some *courteous* correspondent, ignoring my qualifications in that way, also forgetting his own deficiencies in the same respect.

Par exemple, I beg to refer your readers to page 483 of the *B. B. J.*, misquoted by 'X-Tractor,' to which the signature is not Mr. W. McNally as he says, but that of another person. This misquotation is of a piece with his habitual inaccuracy, intentional or otherwise. When he attempts writing again let him bear in mind that I have never written anything in these columns, or in any other journal, against the N. of Ireland Show.

Mr. 'Amateur Expert,' a word in your ear. You are very kind and chivalrous coming to the rescue of your brother in distress, 'X-Tractor.' Your aid, though perhaps much needed, has been of little avail. 'The clan of McNally, jointly and severally,' are individually responsible each for his own acts and sayings, and not in a corporate capacity. You need not grudge us our hard-

earned annual honours, since you have a weekly puffing all to yourself, from your *confrère* 'X-Tractor,' to be returned in kind.

Without trespassing further on your space, just a word of advice: when next you and 'X-Tractor' visit the Wild West to revel in the congenial society of the Red Indians, be sure to provide yourselves with an ample supply of Apifuge and Fumigators; perhaps you will meet some 'cute Scotchman who might invest. But, 'A. E.,' I have hitherto admired your contributions not a little, though you have, unfortunately, lowered yourself in my estimation by your recent communication, which was altogether uncalled for.—WILLIAM MCNALLY, *Glenluce, Scotland.*

[We agree with our correspondent that 'this controversy does not tend to edification,' and therefore we consider it desirable it should now be closed.—ED.]

A DESIDERATUM.

[1356.] I think it would be a great accommodation and advantage to many bee-keepers who occasionally run up to town if there were a sort of museum or show-room in London, where they could see all sorts of appliances and inventions new and old by many makers, especially if the person in charge was qualified to explain and give information and perhaps take orders. I see many advertisements and hear of many things which if I had an opportunity of seeing I should probably procure.

If properly managed I think it would pay well, and I am sure it would be much to the advantage of makers and inventors of really good things. Again there is a certain amount of (instructive) bee-literature. I for one would willingly pay liberally to see some of these books, though I do not care to buy many of them. If the B.B.K.A. could see their way to establish something of this sort I think they would find it a considerable element of attraction and stability. Possibly, Mr. Editer, you may think the hint worth supporting.—KNOWNOTHING.

[A library of books appertaining to bees and bee-keeping has been established by the B.B.K.A., from which members of the Association have the privilege of borrowing, on application to the Librarian.—ED.]

PREVENTING ROBBING.

[1357.] In a late issue of 'Useful Hints' carbolic powder is mentioned as a preventive of robbing. A much simpler plan is one recommended by the same writer some time ago, and which I have *always* found successful, viz., placing a square sheet of glass in front of the entrance, resting on the alighting-board. I have used it many times, and it has always stopped robbing at once.—L. B. BIRKETT, *Westbourne, Evesworth.*

BEES AND MANURE-HEAPS.

'And them a' doctor's saws and whittles
Of a' dimensions, shapes, and metals,
A' kinds o' boxes, mugs, and bottles,
He's sure to hae:
Their Latin names as fast he rattles
As A. B. C.

'Calces o' fossils, earths, and trees;
True salmarinum o' the seas;
The farina of beans and peas;
He has't in plenty;
Aquafortis, what ye please
He can content ye.

'Foreby some new, uncommon weapons,
Urinus spiritus of capons;
Or mite-horn shavings, filings, scrapings,
Distill'd *per se*;
Salalkali o' midge-tail clippings
And mony mae.'—BURNS.

[1358.] Oh, dear! more groping among musty chemical works is my lot. Well, I suppose it must be done, that matters may be put in a more shipshape condition, and errors corrected between me and thee. 'Naquet,' 'Attfield,' *The Year Book of Pharmacy*, all are here, and let me wade into their mysteries as friend Grimshaw has led the way in his almost exhaustive compilation of authorities.

Now, in the first place, it is of no consequence, for the sake of argument, what acid the bees are in search of, be it uric or hippuric, it matters not which. Mr. G. appeared to have confounded them. His words (letter 1316, 20th Oct.) are 'Uric acid might be a better term, seeing that uric is found in animal and hippuric in human liquid excreta.' I think it no unfair deduction that Mr. G. wrote this with the idea of correcting what he thought was a mistake of mine in stating uric to be the acid of human and hippuric of animal. Now he says he merely suggested that uric was the acid the bees were in search of; I do not see the suggestion, I merely see the statement that I have misplaced the acids, to which I know he won't mind me replying—I haven't. Mr. G. knows that it is possible to obtain from a substance, by chemical means, a body that substance in its normal condition does not contain. Hippuric acid is convertible into benzoic acid; in fact, it is the source of much of the acid in the market. But again I would remind Mr. G. of his own words. 'Hippuric acid will be secreted by all animals that have benzoic acid given them.' This naturally provoked the question, 'Upon what food can an animal be fed in order that benzoic acid may be taken into its system with same, in quantities sufficient to form hippuric acid, which is found in *every* manure-heap frequented by a few bees?' The italics I now place that the question may be more fully understood; and my suggestion that in Yorkshire they may be fed on gum-benjamin.

It now appears that 'where horses are worked hard,' *i.e.*, treated with a good allowance of stick, 'they secrete benzoic instead of hippuric,' possibly since the feverish state and raised temperature of the bladder in that ease might produce the oxidation,' the statement is a quotation from Naquet, *Principles of Chemistry*, no other statement by any of the big-wigs of chemistry bearing upon the question has come my way; but all things are possible to him that believeth, and henceforth I will add a sufficient ash cudgel to my stock of chemical re-agents. I plead guilty to the suggestion that I imagined Mr. G. to have mistaken essence of mirbane, or, as it was called when it first appeared, artificial essence of bitter almonds, by reason of its true name, nitro-benzol, being in its last component benzol like unto benzoin. By-the-by, Mr. G. says he never heard of that name, and calls it nitro-benzene; let him turn to his Attfield at page 404, he will find 'benzol, the liquor obtained from coal-tar;' again, 'benzol by the action of strong nitric acid yields nitro-benzol $C_6 H_5 (NO_2)$ a liquid termed from its odour artificial essence of bitter almonds, or essence of mirbane. The odour of this essence, however, is not exactly like bitter almonds, and its composition very different.' Muspratt, page 285, gives the various names for the body known as benzol, viz., benzene, benzine, phene bicarbide of hydrogen. Fownes, page 487, calls it nitro-benzol. *Year-book of Pharmacy*, 1885, page 97, calls it benzol, but Mr. G. says he never heard of it under that name. I was led into this mistake, thinking that Mr. G. had confounded nitro-benzol and the benzoin products, by the loose way in which he used the term benzoic, *vide* his letter:—'benzoic' (?) 'the ancient product of the fragrant aromatic gum-benzoic' (?), 'benzoic' (?) 'from which is prepared the delightful essence of bitter almonds, so much used for flavouring'—in one line referring to benzoic acid, in the next line benzoic hydride, or aldehyde.

Benzoic acid $HC_7 H_5 O_2$, can be obtained from many diverse substances—gum-benjamin or hippuric acid in urine of the herbivora; it can be obtained from hydride

of benzoyl $C_7 H_5 OH$—that is, oil of bitter almonds, but it is obviously impossible to obtain oil of bitter almonds from benzoic acid, therefore Mr. G. should have used more care in the construction of his sentence, for he certainly implies that oil of bitter almonds or hydride of benzoyl can be obtained from benzoic acid. In his reply he says, 'we have also benzoic (*sic*) converted by the chemist into its aldehyde.' What does he mean? This is a repetition of the original confusion, and only tends to make the confusion worse. In conclusion, we would recommend Mr. G. to carefully weigh his words next time he writes on chemistry, and then the fog that appears to wrap his chemical communications will disappear and our poor knowledge can discern his meaning, if our brain fails to comprehend his reasoning.—W. B. WEBSTER.

[We consider that the above subject has now been sufficiently ventilated in our pages.—ED.]

PRICE OF HONEY.

[1359.] Being a regular reader of the *Journal*, I have been much interested, and sometimes amused, to read some articles respecting the price of honey. I for one am inclined to echo the sentiments of one correspondent, when he says in effect that 'if 9*d.* per lb. cannot be obtained it is no use as a matter of business.'

Personally I have experienced no difficulty in getting 9*d.* per lb. wholesale and 1*s.* retail (*customers finding their own jars, &c.*) *i.e.*, for good extracted honey. I have sold a fair quantity this year of other friends' as well as my own, and in not a single instance have I received less than 9*d.* per lb. for it. I know this cannot be done without some effort being made, but what business *can* be carried on without effort? There seems to be in some people a kind of 'human drone,' who expect all their work to be done by others, and then grumble because they cannot get on. If ever we come across these, we say to their faces, 'Serve you right, you should try.'

Now, I took up the suggestion given in the *Journal* a few weeks since, and have sold the greater portion of the honey I have had to neighbours and friends. The time for convincing people that honey is a valuable article to keep in the house is, to a large extent, over, and I have only to ask many to take a few pounds before getting a ready response. If every bee-keeper would work in this way there would be less running to print with the grumble about County Associations selling their honey. There is a considerable difficulty, I admit, with bee-keepers who live in 'out-of-the-way' places; but as a rule they have some friend or friends in or near large and populous neighbourhoods, who, for a trifle as profit, would sell large quantities. I think on each article sent out containing honey a label of attractive appearance, with the name and address of produce neatly printed with rubber stamp, should be seen.

Mr. 'Useful Hints' in a previous *Journal* has made a very apt remark when he says 'that it is a great mistake to force honey upon the market all in one three months of the year.' I prefer to keep it, if possible, all the year round, so that I shall not have to disappoint any who ask for it at any time. People, as a rule, will rather buy from the producer than from the chemist, and the only thing which needs to be done is to circulate the fact well that you have *pure* honey for sale, and the difficulty of selling it is trifling.—CHAS. HOWES, *Aylestone Park, Leicester.*

HOW TO SECURE STRAIGHT COMBS.

[1360.] This is the basis of successful bee-culture, for it is impossible to handle the bees unless the combs are hanging perfectly straight in the frames, so as to be easily taken out separately.

The plan formerly in use, and indicated by Langstroth, was a bevel on the lower side of the top-bar. This bevel, made in the shape of a V, was sometimes made very small, and usually succeeded tolerably. Yet it happened very often that the bees would join the comb of one frame to that of another, and when they were full of honey it was impossible to separate them without cutting the comb and causing a great deal of honey to run out, drowning bees and sometimes attracting robbers.

The invention of comb foundation has finally and for ever put an end to crooked combs wherever it is used. Comb foundation forces them to build combs which hang in the frames 'as straight as a board.' Indeed, it has even one advantage over natural comb, it is more regular. This was said very truly by one of our leading bee-keepers at an Eastern convention.

There are, however, some attentions necessary in order to have the full benefit of the comb foundation in obtaining straight combs. For instance, the hives should be perfectly level from side to side, so that the foundation will not hang out of the frame, but will remain perpendicular in it until the bees have it finished and well fastened to the sides. It should also be well fastened to the centre of the top-bar. This is done by pressing the edge of it down on the under side of the bar with a knife while the wax is warm enough to be quite pliable.

When foundation is given to a strong natural swarm, it should be given sparingly, not more than two or three inches deep in each frame, for if a full sheet be given, the large numbers of the bees that will cluster on it will cause it to sag. Full sheets can be given safely to colonies which have been divided, or even to full colonies in early spring before they have attained full strength.

But in order to secure straight combs it is not absolutely necessary to give more than a small strip of foundation on each frame running along the full length of the frame. With such strips on each frame, and hives set perpendicular from side to side, straight combs will be secured *every time*. It is, however, advisable to set the hive somewhat slanting forward. This will cause the water from rain or moisture to run out of the hive, and will not prevent the combs from keeping perpendicular, since the slope will be in the length of the frames, and not across them.—C. P. DADANT, (*Western Apiculturist.*)

A FULL COLONY OF B'S.

B-think ere you stumble, for what may B-fall,
B truthful to self, and B faithful to all;
B watchful, B ready, B open, B frank,
B manly to all men, whate'er B their rank.

B calm, B retiring, B ne'er led astray,
B grateful, B cautious of those who B-tray.
B careful, but yet B sure to B-stow;
B temperate, B steadfast, to anger B slow.

B earnest, B truthful, B firm and B fair,
B meek, and of all mis-B-haviour B-ware.
B pleasant, B patient, B fervent to all,
B best if you can; but B humble withal.

B just and B generous, B honest, B wise,
B mindful of time, and B certain it flies.
B hopeful, B cheerful, B happy, B kind,
B busy of body, B modest of mind.

B brave, and B-ware of the sins that B-set,
B sure that no sin shall another B-get.
B prudent, B liberal; of order B fond,
Buy less than you need, B-fore buying B-yond.

B prompt and B dutiful, still B polite,
B reverent, B quiet, B sure and B right.
B thoughtful, B thankful, whate'er may B-tide;
B trustful, B joyful, B cleanly B-side.
B tender, B loving, B good and B-nign,
B-loved shalt thou B, and all else B thine.

American Bee Journal.

Echoes from the Hives.

Llangranog, Cardiganshire —I only commenced bee-keeping this year, and this is my result:—I bought a skep of bees in April and transferred them into a bar-frame, tiered them in June, and have taken 23 lbs. of honey; they were a weak lot, but they have almost paid for themselves already. This is a poor honey district, as we are near the sea. All have skeps, not bar-frame hives, in this part, and the ordinary average of honey which those who have killed bees have had is under 20 lbs. per skep. Some have not been able to take honey at all this year, and many swarms were lost in the hot weather.—CRANOGWEN REES.

Carno, Montgomeryshire.—I commenced this year with six bar-frame hives, made two artificial swarms in June, sold one hive, and bought a hive of Carniolan bees, which made my total number eight to commence the honey season. From them I have had at least 240 lbs. of extracted honey and thirty-six sections, also one swarm and 3 lbs. of wax. The artificial swarms and the stocks from which they were taken gave but little honey, but the Carniolans and two other hives gave the most of the quantity.—M. E. MARSH.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

M. E. MARSH.—*Hive with Twenty Frames.*—Under any circumstances, remove frames from upper box and place quilt on bottom frames, putting a chaff-cushion over that, taking care to press the cushion well down into the corners. It would be preferable to reduce the frames in the lower box to eight, or perhaps six, if the stock is weak, should a favourable day occur. If you have any doubts as to the bees having plenty of stores, place some candy on the frames before covering up. Add half an ounce of pea-flour for every pound of sugar *after* the candy is removed from the fire, thus supplying nitrogenous or tissue-forming matter, of which sugar alone is very deficient.

H. W. P.—1. *Extractor conveying Foul Brood.*—Undoubtedly the indiscriminate use of an extractor in a district where foul brood is prevalent must be very dangerous unless extreme care is exercised in most scrupulously scalding every portion of the extractor; adding some of Calvert's carbolic acid to the first hot water used would be advisable. Use several rinsing waters. 2. *Old Honey for Spring Feeding.*—The honey might be used as you suggest, but syrup is more economical, and is less likely to start robbing than honey. Why not make mead with the old honey, or use it in currant cakes instead of sugar?

MISS CORNWELL.—*Natural Swarm placed on Stand of Parent Stock; Parent Stock removed to a New Location.*—This plan is recommended on the grounds that the parent stock thereby loses the greater part of its flying bees, who, going to the old stand, join the swarm, while the parent stock—now hatching out young queens—will not be sufficiently populous to throw a cast, and will, therefore, only allow one queen to hatch. *Caution.*—The parent stock should be fed gently for a week or ten days to compensate for the loss of flying bees,—recommended on p. 222 of *B.B.J.* for May 26th, 1887; by Heddon on p. 24 of *Success in Bee-culture;* and other authorities.

BERT.—1. *Two Hundred and Thirty Pounds from one Hive.*—This amount was produced in Mid Sussex in the year 1885. 2. The frame used was the Standard frame of the B.B.K.A. 3. Both section and extracted, the latter in the greater proportion.

EAST LIMERICK.—*Honey.*—We are of opinion that the honey partakes of the hawthorn, and that it is pure honey uncontaminated with honey-dew. The bees working at the same time on the laurels has rendered the honey dark, but it is excellent in flavour; and if appearance were not so much a matter of consideration, it would would rank as first-class, but there is no doubt that its colour depreciates its market value.

H. SCHWARTZ.—1. *Bees short of Food at the beginning of the Year.*—An unusual number of dead bees at the entrance of a hive is not a sign of starvation only. Bees short of food get too weak and sluggish to fly so frequently as strong stocks. In our apiary (fourteen hives) we have noticed that those stocks that have kept on breeding latest are those who face the worst weather for a fly, and that water seems their principal quest, which they of course required for the grubs. Many never return, and this is one of the disadvantages of late breeding. Should any of our stocks not take full advantage of a fine day in January for a flight we should expect their store of food was failing if no disease was affecting them, but an examination can be so easily and speedily made. 2. *Queenless Stock placed on empty Combs building Queen-cells.*—We have an abnormal queen-cell sealed, close on two inches in length, which, with several ordinary besides rudimentary ones, was built by a queenless, eggless, and grubless stock last spring. There is a tradition that bees will purloin eggs from another stock when in this forlorn condition. It seems to be a *sine quâ non* with bees to build a queen-cell as soon as they miss their queen. In your case they might probably be some considerable time longer before they found out they had nothing from which they could raise a queen. Then comes the plague of the fertile worker. 3. *Flat-bottomed Foundation for Supers—why made so?*—Flat-bottomed rolls can be made cheaper than natural-based. Should bees neglect to draw out the base it leaves the septum thinner than would be the case with natural-based. 4. *Can a Swarm be safely left till evening if shaded?*—No, you might not lose it, but it would be very risky. Swarms should always be hived at once. The swarm may be sometimes induced to remain clustered for a short time longer by gently spraying it with water from a syringe. The longer the bees are left the more likely are they to be led off as a vagrant swarm by their scouts.

SHERBORNE, *Dorset.*—We are of opinion that our correspondent will find his questions answered in the letters 'How to do it,' 'What bees can do,' and 'One hundred pounds per hive,' in our present issue.

J. W.—*Queen-rearing.*—This subject has received during the past season a considerable amount of attention. If our correspondent will refer to pp. 41, 210, 281, 301, 313, 315, he will find the information he is in quest of.

Business Directory.

HIVES AND OTHER APPLIANCES.

ABBOTT BROS., Southall, and Merchants' Quay, Dublin.
APPLETON, H. M., 256A Hotwell Road, Bristol.
BAKER, W. B., Muskham, Newark.
BALDWIN, S. J., Bromley, Kent.
BLOW, T. B., Welwyn, Herts.
BRITISH BEE-KEEPERS' STORES, 6 George Yard, Fenchurch St.
BURTT, E. J., Stroud Road, Gloucester.
EDEY & SON, St. Neots.
HOWARD, J. H., Holme, Peterborough.
HUTCHINGS, A. F., St. Mary Cray, Kent.
MEADHAM, M, Huntington, Hereford.
MEADOWS, W. P., Syston, Leicester.
NEIGHBOUR & SONS, 149 Regent St. & 127 High Holborn.
STOTHARD, G., Welwyn, Herts.
WEBSTER, W. B., Wokingham.
WOODLEY, A. D., 26 Donnington Road, Reading.
WREN & SON, 139 High Street, Lowestoft.

HONEY MERCHANTS.

ABBOTT BROS., Southall, and Merchants' Quay, Dublin.
BAKER, W. B., Muskham, Newark.
BALDWIN, S. J., Bromley, Kent.
BRITISH BEE-KEEPERS' STORES, 6 George Yard, Fenchurch St.
BRITISH HONEY CO., Limited, 17 King William St., Strand.
EDEY & SONS, St. Neots.
HOWARD, J. H., Holme, Peterborough.
NEIGHBOUR & SONS, 149 Regent St, & 127 High Holborn,

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BRITISH BEE JOURNAL

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Editorial, Notices, &c.

BRITISH BEE-KEEPERS' ASSOCIATION.

In conformity with the rules as amended at the last Annual General Meeting, every candidate for the Committee must be nominated by two members of the Association; the nomination paper must also bear the signature of the nominee giving his consent to be so nominated.

Forms for nominating members will be ready in a few days. The last day for receiving nominations will be Saturday, December 31st. The retiring members of the Committee are Mr. T. W. Cowan, Hon. and Rev. H. Bligh, Rev. Dr. Bartrum, Captain Bush, Captain Campbell, W. H. Dunman, J. M. Hooker, H. Jonas, Rev. F. G. Jenyns, Rev. Geo. Oddie, Rev. G. Raynor, Rev. F. S. Sclater, Rev. F. T. Scott, Rev. J. L. Seager, and Dr. Walker.

'KEEP YOUR COLONIES STRONG.'

It has been our duty frequently to remind our readers of the absolute necessity of systematically carrying out this motto, if success is to be attained in the production of surplus honey. Applicable as this motto undoubtedly is to bee-keeping, it is equally so to our Associations, which occupy the same relation to the bee-keeper that the stock does to the bee. Union is strength, and in localities where energetic and advanced bee-keepers combine to form a District Association it is surprising to see the immense amount of good that can be done in the course of a season or two, by showing their less advanced neighbours the latest methods and most successful systems of acquiring a good surplus, even to the extent of 'honey by the hundredweight.' The common stand-point of our Associations is so entirely philanthropic that any improved system should, if the objects of the B. B. K. A. are to be attained, become common property. We are aware of the natural tendencies of Englishmen to acquire 'vested interests,' but the very *raison d'être* of our Society is combination for the improvement of bee-keeping. This being the case, it behoves us to consider what means may be adopted to increase the influence and usefulness of Associations. In doing so we propose to go beyond the County, and deal more especially with the District organizations. We fear that in many cases the 'District' has been chiefly the medium for conveying the members' annual subscription to the County Secretary, and, perhaps, assisting to promote a local show of honey, &c. Now, good as shows have been, and always will be, as a means of arousing a healthy interest in bee-keeping, it is clear that the efforts of our 'Districts' must not be allowed to end there, or little permanent good will accrue; certainly not sufficient to 'keep the colonies strong.' 'Packing for winter' should be attended to by lectures, which in the majority of cases should be thoroughly plain and practical; by friendly meetings at the homes of different bee-keepers in succession, which may either partake of the informal character of a conversazione, or the more formal Mutual Improvement Society, where scientific subjects could be discussed, and elucidated by the aid of a microscope. This care would enable the colony to come out strong in the spring, when, by judicious 'feeding' in the way of itineraries by the more expert, much good could be done by hints and assistance.

We consider it incumbent on us at this point to call especial attention to the practice of many members who kindly give assistance to their neighbours without securing them as members. In cases where such non-members persistently decline to join the Association, it is a question to what extent further assistance should be rendered. The fees are so low as to be well within the reach of all, and seeing that so much has already been done by combination it behoves every member to do his best to secure fresh members, and so enable his Association to attain that success which their philanthropic aims clearly entitle them to hope for. We would here mention a plan, adopted by the Middlesex B. K. A., of asking every member to give the County Secretary a list of any bee-keepers in his neighbourhood who have not yet become members. This should result in a considerable increase during the coming season.

The idea has been recently mooted that County Secretaries should undertake the sale of the surplus honey produced in their county, which the members themselves may experience a difficulty in selling. This is an untenable proposition for many reasons. In the first place, it would entail freightage from the producer to the Secretary, which in the majority of cases would more than demolish any extra profit

which this *over-honeyed* official could possibly secure. One fact must be patent to all, that if producers cannot dispose of their honey locally at a fair price, they can never expect to get any one to act as County Secretary in an *honorary position* who will be prepared to spend a considerable portion of his time in soliciting orders, packing honey in fulfilment of same, keeping rather bulky accounts, and remitting proceeds to the various bee-keepers. Our County Secretaries are worthy of all praise for their unwearying exertions on behalf of bee-keeping, but to ask them to first teach us how to produce honey, and then to sell it for us afterwards—*all gratis*—shows a want of self-reliance that no bee-keeper should ever exhibit.

Doubtless cases may occur where the District Secretary would be able to considerably assist the members in his district if he were duly apprised of unsold honey and bees, and also of honey and bees wanted. Frequently a successful bee-keeper develops a local connexion, enabling him to dispose of his surplus at a *fair* price, when, suddenly, he finds he has not half his usual quantity to sell. Two alternatives are before him, either to disappoint his customers, or buy. This is the opportunity when much time might be saved if he could obtain information from his District Secretary, enabling him to go direct to those who had honey in excess of their requirements, but did not care to look about for customers. Great mutual advantage would be attained by such an arrangement. The same plan as regards swarms and bee appliances would be equally useful.

In conclusion, we would recommend every member, while relying as far as possible on his own efforts, to be ever willing to listen to the experience of others, and at the same time quite ready to assist his neighbours; then, and then only, shall we be able to 'keep our colonies strong.'

USEFUL HINTS.

Weather. — Severe frosts, with snowstorms, are visiting us betimes; hence, according to the old saying —'When ice before Christmas bears a goose, it never bears a duck afterwards'—we ought to expect a mild winter. Severe or mild we care not, if only we may escape such a fog as we experienced in the great City on Wednesday last. Unable to discover our whereabouts even in the now well-known and notorious Trafalgar Square, we were obliged to ask a guardian of the peace, 'Where are we?' Truly, it was with no small degree of pleasure that we said adieu to our friends the Kapnodytes, and once again breathed the pure and invigorating country air.

Shading Entrances is necessary when snow lies on the ground in bright sunny weather. For this purpose a stout board should be placed in front of the entrance to prevent the bees from being enticed forth to perish in the snow. Hives should be kept clear of snow, lest by alternate thawing and freezing cold and dampness injure the bees. Let entrances also be kept open and free from snow, dead bees, and refuse, by the use occasionally of a bent wire. These small precautions conduce in no small degree to the health of our colonies.

Requisites for Wintering may be summed up under four heads:—(1.) A sufficiently large population to cover about eight standard frames at a temperature of 60° Fahr. To produce this, breeding should not be continued later than the end of September, and may be stimulated up to that time by feeding. (2.) The space occupied by the bees must not be greater than required, whether they cover eight or ten frames, and these frames should be enclosed between stout, close-fitting division-boards: a space of 1¾ inches from centre to centre of the frames, with winter passages in every comb, is desirable. (3.) Sufficient covering winter quilts. Whether enamel cloth or pervious woollen material be placed next the frames, it must be covered by three or four layers of soft carpet, capped either by chaff-tray or straw-cover. Abundance of bottom ventilation should be provided, especially if the frames are ranged on the 'warm system;' and an entrance, extending across the entire front of the hive, and covered with perforated zinc-slides — allowing a small passage-way for the bees—will not be too large; also a space of from two to four inches beneath the frames is decidedly advantageous by keeping the hive dry and the bees healthy and vigorous. (4.) A sufficient quantity of well-ripened sealed food, preferably honey gathered in the early part of the season. But those apiarists who have extracted up to the brood-nest, and fed their bees on syrup made of granulated cane sugar according to the prescribed receipt, have no cause for anxiety if a sufficient quantity of well-sealed food has been provided, although we decidedly prefer natural stores. From 20 to 25 lbs. is enough to carry a strong colony through the winter.

It is best that the sealed food should be spread over the whole of the frames, except, perhaps, that the two outside ones may be solid slabs of honey. If winter-passages have not been provided through the combs, strips of wood a half-inch thick and one inch wide may be laid across the tops of the frames, about two inches apart, to allow of the bees passing from frame to frame; but care must be taken to make the outside square complete by similar strips, to prevent the escape of heat and bees, and to cause the quilts to lie flat on the whole. As regards late breeding being necessary to provide bees for spring work, we have repeatedly proved that August and September-hatched bees are available for work up to the following April and May. It is only during severe summer labours that any industrious *protégées* wear themselves out in the short period of six weeks. It is not meant that these winter preparations should be made *now*. All should have been completed by the end of October, at latest, and now that winter has made its appearance in earnest, even if no preparations at all have been made, it is best to leave the bees entirely alone, in the state in which nature only has taught them to make provision for the winter's rest. In cases of starvation, of course, candy must be pushed under the quilts, as advised in our last.

Our Transatlantic Brethren.—In some rather caustic remarks in the '*Am.' Bee Journal*, by Dr. Mason, on the subject of our late Canadian visitors pushing their sale of 'Linden honey' in the English market, at the expense of the States' so-called 'Basswood honey,' we notice the following characteristic remarks amongst other choice specimens, such as 'Wily Canadians,' 'Modest Englishmen,' &c.:—'Is it not about time some one just slightly pricked some of the egotistical and bombastic bubbles that have been sent up by some of our cousins across the border, and *other relatives* on the other side of the pond.' In a note appended to Dr. Mason's letter, the editor of the *A. B. J.* quotes from the Lord Chief Justice of Manitoba, who is an ardent lover of bees, to the following effect:—'I think the white-clover and basswood honey is the best. There is in all the accounts published a good deal of *brag*, for which due allowance must be made. I find that bee-keepers over-estimate. The occupation is of an exciting character which may account for it.' Do these allegations apply to English as well as to American bee-keepers? The Lord Chief

Justice—who, we are told, is 'one of Canada's best and brightest sons'—goes on to remark on the average production of honey in Canada, which he estimates at 75 lbs. of extracted per colony, and says that—'40 lbs. per colony of comb-honey is a fair average.' What would his lordship say to the statements contained in the letter (1354) entitled, 'What Bees can do,' of our correspondent 'An Old Bee-master?' With the splendid bee-flora—as regards both quantity and quality—described by Mr. Cowan as existing in Canada and the States, are we 'modest Englishmen' to conclude that our average exceeds theirs?

While on the subject of choice diction and epithets, as applied to opponents, a few 'Hints' may prove 'useful' to all of us. In newspaper correspondence the golden rule of doing to others as we would they should do unto us, is almost entirely ignored, except in the higher-class publications. Amongst these we are all anxious that 'our *Journal*' should maintain its position. A debater, whether in print or *vivâ voce*, should be master of himself, even when assailed by insulting attacks, always patient, self-controlled, vigilant, ready, courageous, and fearless, and his temper should be faultless. A man who can justly lay claim to these qualities need fear no opponent. Always kind and courteous he will return good for evil. Alas, how few of us can reach so high a standard! Truth, and not victory over an antagonist, should ever be our one great object; and, when convinced that we are wrong, let us have sufficient courage to acknowledge our error. But, as we descend from our preaching stool, we can fancy that we hear some one exclaim, 'Physician, heal thyself,' and our reply is, 'Act up to our preaching and not to our practice—take the will for the deed, for *humanum est errare*.' Then again, as regards the conduct of a 'Journal,' especially our own, we hold that a 'Bee Journal' should not devote too much space to technicalities,—should be eminently practical—should contain simple illustrations of the appliances of our art, adapted to the edification of the learned and the ignorant—should abound in useful hints for the million, and its pages should be interspersed with short scientific articles for the more learned and educated of its readers. Interesting and useful queries, with their answers by practical and experienced apiarists, should be another and most useful feature of 'our *Journal*,' while to more simple queries the answers alone should be given. Recondite discussions on scientific subjects, with embittered correspondence on matters of little or no importance, should be altogether eschewed. And now our parable has been taken up and ended, and it will be a long time before we again trouble our readers with our views on these or kindred subjects. Far be from us the intention of casting reflections on the conduct of 'our *Journal*' by its esteemed Editor, sub-editor, or more prominent contributors; our only object being to point the direction in which lies, as it appears to us, the most useful course for advancing amongst all classes the great industry of apiculture which we all have at heart.

Since we are sending out to that Greater Britain, upon which the sun is said never to set, our trained and certificated experts, and since our antipodean colonies are running a very close race with the mother country in apiculture and its literature, surely we ought to set them an example of what a '*Bee* Journal' ought to *be*.

Planting for Shelter should now be carried on in open weather. The Portugal laurels, laurustinus, common laurel, and other evergreen shrubs, form an excellent shelter for hives when planted on the north, north-east, and north-west sides of an apiary, and are easily kept within bounds by the use of the shears, forming also a receptacle for natural swarms, and supplying forage for the bees. For the latter purpose, the deciduous small trees *mezereon* and *ribes* are excellent. Bulbs of snowdrops and crocuses should be planted without delay. We have a long row of the *Echinops sphærocephalus* (Globe thistle) raised from seed, promising abundance of bloom for another season. During last summer *Echinops ritro* was a great favourite with our bees.

Frames with Divided Top-Bars are said to be weaker than others, but are they really so with the addition of a couple of French nails, or small screws, through the bars after wired foundation has been inserted? We think not. At least, after some experience we have not found them so. Indeed, with the same substance as undivided bars, and with Carr's ends, we have found them equally strong.

Foundation, Hives, Frames, and Sections, will soon be in request; it therefore behoves supply-dealers to complete their arrangements for supplying these, whether new or old inventions, in quantity. English-made wired foundation is, we consider, a great desideratum; and although we are not given to prophesying, we cannot but hazard an opinion that the first English firm which produces in quantity first-class wired foundation will have gone far towards making its fortune.

And now we conclude with an easy problem for the solution of our junior readers, albeit we have known individual cases of elders of our fraternity unable to solve it. Will our editor permit practical solutions to appear in the *Journal*? If he consents, we shall have pleasure in offering a modern frame-hive as a prize for the best solution in verse. Here it is:—'If six tomtits kill six bees in six minutes, how many tomtits will kill one hundred bees in fifty minutes?'

[We shall be pleased if young bee-keepers would take advantage of the above kind offer, and so exercise their minds in this which is called the dull season of the year. In a subsequent note, the compiler of 'Useful Hints' states that the candidates should not be above sixteen years of age.—Ed.]

Selected Query.

[2.]—*Which is the best, cheapest, and quickest way of getting a quantity of combs built out for use in extracting? Should starters be given, or full sheets of foundation?*

This very much depends upon the time that the honey-flow or flows take place in any particular district. Where there are two separate harvests, the intermediate space between these seasons is a very good time to get these combs built; but where there is only one flow and the combs are desired to be used in the current season, during May is the most suitable time. This should be done in the following manner:—When the colony has been brought by stimulation to the strength of covering eleven frames, either one or two frames of foundation should be placed in the brood-nest, and a diaphragm of excluder-zinc slipped in between the two outermost ones—if there is any brood in them—and the other frames, gently feeding at the same time. When the last two frames are free from brood they can be removed. I find it a disadvantage to impose too much comb-building upon a colony when a good honey yield is desired, so have rarely taken more than three combs from one colony during the season with the exception where I have run a colony expressly for comb-building. I have then run this colony in the same manner as above advised, only keeping on with it right through the season with shallow frames. I have them built standard size and then cut this out and fit into shallow frames. Whole sheets of foundation should be used wired into the frame—the combs are a deal tougher.—W. B. Webster.

The best and cheapest way of getting a quantity of spare combs ready for extracting. In autumn select a

few hives for building out spare combs, place on each a rapid autumn feeder, give frames with full sheets of foundation, allow the bees to fix the foundation in frames all round before feeding too rapid. When well attached feed copiously with syrup. As the syrup-fed frames get filled and sealed, these may be exchanged with frames of honey from other hives. While in turn the honey can be extracted from the frames and returned to the bees to clean, after which they can be laid by for next season. In laying the frames by I have rafters fitted in my honey-house overhead and spaced so as the frames will hang in position — they are always in view, and ready when wanted. — Wm. McNally, *Glenluce, Scotland.*

The best, cheapest, and quickest way of getting a quantity of combs built for use in extracting, is to give a strong stock of bees frames filled with full-sheets of foundation, and then feed the bees with sugar syrup for them to secrete the wax required. By this means a very great number of combs can be made in a very short time. —William Carr, *Newton Heath Apiary.*

For this purpose use full sheets of foundation—one or two at a time in the centre of brood-nest while building up in spring: uncap the stores of outer combs, place them behind division-boards, and remove as emptied to be reserved for extracting. Where fewer combs are required, or the apiarist wishes to renew a portion of his surplus combs yearly, a cheaper plan is that of using starters only, no more than a quarter-inch in depth. Feed carefully in either case. Several other methods require more space than can be given to describe them here.—Samuel Simmins.

Full sheets of foundation placed in very strong stocks just before swarming.—G. J. Buller.

By lifting a frame of worker brood from the centre of a strong colony, replacing such with a frame you started only. Place your frame of brood in the centre of a storified body over the colony, adding on either side of brood a frame started with full-sheet foundation; these in place, the hive is made up, each frame carrying less depth of foundation to the outer ones, the latter to have starters about two inches deep or quarter the depth of a sheet. Colonies so treated we have found to give as good a result in extracted honey as those where entirely worked-out combs were given.—J. H. Howard, *Holme, Peterborough.*

Probably, by procuring as early in the month of August as possible, condemned bees from cottagers, uniting three or four colonies and placing them upon full sheets of wired foundation, copiously feeding on granulated sugar-syrup, and removing and storing the combs, as finished, and fitting up the gaps with fresh sheets of foundation.—George Raynor.

Full sheets of foundation with wired frames or use the sheets of wired foundation, thus having a good foothold to frame, the combs will stand the centrifugal action of extractor better than combs built naturally or without wire.—W. Woodley.

Bee-Farming.—The man who enters a large bee-farm for a term in the hope of gaining an insight into the practical management of the same must not think all the necessary information is to be picked up simply by looking around and paying occasional visits to the apiary. On the contrary, he must make up his mind to go there to work just as any other apprentice or assistant. The daily routine must be gone through in every particular, and though some manipulations may be repeated constantly, it will be only by such close study and application that he will make himself master of the entire practical management.—S. Simmins: *A Modern Bee-Farm*, p. 187.

MY BEES.

By Mrs. Reginald Bray,

Author of 'Family Feats,' 'Ten of Them,' 'We Four,' &c.

(*Continued from page* 503.)

Chapter II.—Driving and Transferring.

A few days after I had received my hives, and whilst I was still waiting anxiously for my swarms, which never came (probably because they had already swarmed earlier in the season), my friend, Mrs. Graham, sent to me to say that they were expecting Mr. Joy to come and transfer their bees from the straw skeps into a bar-frame hive.

I hastened to her garden in great excitement, wondering how it was possible to move all the bees from one hive to another, and longing to be initiated into the mysteries of bee-driving.

When I arrived I found Mr. Joy with a veil over his head, but his hands bare and his shirt-sleeves rolled up prepared for action. He was going to unite the bees from two skeps into one bar-frame. The season having advanced, it was expedient to make the hive as strong as possible.

The first thing he did was to take a smoker, with some brown paper alight in it, and puff some smoke into the entrance of the hive. This was not so much for the purpose of stupefying as for frightening them. Directly bees are frightened they run and bury their heads in the cells and gorge themselves with honey. After this (like some of the higher creation after dinner) they are in a good temper, and you can do almost anything with them.

It may be as well to remark here that it is necessary to be very careful in handling bees not to jar the frames they are on or shake them. Any sudden movement frightens them, but by gently raising the frames you may look at the bees without any fear, and even brush them back into the hive with a soft brush or wing without any risk of being stung.

Should you have the misfortune to be stung, do not roughly seize the sting and pull it out by the little bag attached to it, as this is the poison-bag, and you will only squeeze more poison into the wound. Push the sting out with your nail or the back part of a knife and put a drop of ammonia in the wound.

Whilst Mr. Joy was making his preparations I examined the hive with great interest.

It consisted of a large wooden box with an alighting board and entrance for the bees. This entrance had two little sliding doors which you could contract as much as you like, for at certain times of the year, in spring and autumn, it is necessary to close them very nearly to prevent the hive from being robbed by stranger bees.

The hive was filled inside with frames of wood, the correct standard size, which I have since learned should be '14 inches by 8½ inches, outside measurement, the top bar being ⅞ths of an inch thick, the side bars ¼ of an inch, and the bottom bar ⅛th of an inch thick, the form being rectangular.'

The top bar of the frames rested on the top edge of the box, and a space of 1⅜ inch intervened between each frame, a metal end being fixed to each in order to keep them at the proper distance. If frames are placed too far apart the bees will build combs down between them, as I once found to my cost.

All the preparations at last made, the exciting moment arrived when Mr. Joy took up the straw hive, and, turning it upside down, stood it in a pail which had been placed ready to receive it. Then rapidly taking an empty straw skep he placed it exactly over the bottom of the hive, and commenced rapping the sides of the hive hard enough to frighten the bees and make them run, but not hard enough to break the combs.

After a very short time the bees began to run up, and

he then tilted the hive back so that we were able to watch the bees running in a continuous stream from the full hive to the empty one. He told us that the queen had probably gone up, and then the bees follow very quickly. In driving bees if you watch carefully you may catch sight of her running up in great alarm. Indeed, it is always necessary to make sure that you have her safe, as sometimes she gets lost or left among the combs. Once in driving bees we could find her nowhere, when, on turning the hive round, she was discovered the other side, having crept through a small hole. If she had not been found our stock of bees would probably have been lost.

However, in Mr. Joy's skilful hands no misfortunes occurred, and in a short time not a bee was left in the old hive, but were all collected in the skep, which was a perfect sight, as it appeared to be half full of bees. This skep full of bees he stood on a stand until wanted, the bees all hanging clustered in the upper part. He now proceeded to take the old hive to pieces, and for the benefit of beginners I will give one piece of advice. When you come to this part of the business take the hive and comb away to some shed or outhouse, a greenhouse is a very good place. Anywhere, in fact, away from the hives you are driving, as the bees become so irritated with the unusual excitement that is going on. It is all very well for experts to do everything in the same place, but it is far better for amateurs to be on the safe side and to proceed with their work where they can feel in safety.

The next thing to be done was to cut the combs out of the hive and transfer them into the frames, and above all to restore to them all their brood-comb. This was a a most interesting sight. He pointed out to us the brood-comb, which can easily be distinguished from the other comb, as, instead of being flat, the caps over the cells are rounded, thick, and of a darkish colour. In some of the cells you can see the eggs like a little white speck at the bottom. In other cells the white grubs in various stages curled up, and occasionally you may be fortunate to see the young bees pierce the cell and emerge a perfect bee, though very weak and pale-looking. These delicate young bees do not leave the hive for some days, as they would be too weak to gather either honey or pollen; but a working bee's life is never idle, and the moment it is hatched it becomes nurse to the young grubs, which it tenderly feeds, until it has become strong enough to take its share in the work outside the hive.

We were also shown the drone-comb, which is very much larger than the worker-comb, four of these cells measuring one inch. Both worker and drone-comb are used for storing honey when not otherwise needed. The cappings of the honey-cells consist of pure wax, but those of the brood-comb are porous, and are made of a mixture of pollen and wax.

I have sometimes heard it remarked that the pollen which we see the bees carrying into the hives on their legs is what the wax is made of, but this is quite a mistake. This pollen, which is the fertilising dust of the flowers, is rolled by the bees into tiny balls and carried into the hives on their hind legs. This pollen is made into what is commonly called 'bee-bread,' and is used for the food of the young grubs and some of it mixed with the wax for the capping of brood-cells. That which is not used is stored away in cells and often capped over with wax.

Wax is the honey extracted from the flowers and which undergoes some change in the body of the bees. So much honey is required for the formation of the wax that it is found that it takes twenty pounds of honey to form one pound of wax. Since I have known this fact it is really an agony to see my beautiful honey-comb devoured at table. I try not to show it, but it is hard not to remind yourself as you watch it disappearing that 'the weight of *comb* in a hive is about two pounds.' Therefore if each pound of comb is worth twenty pounds of honey, and each pound of honey is worth one shilling, what a loss is going on! and how if that delicate comb were only restored to the hive to be refilled what a saving it would be! And you begin to bless the inventor of extractors, of which more anon.

It is now time that I should return to our comb, which is about to be fastened into the frames. For this purpose two narrow pieces of tape are taken just long enough to tie round the width of the frames. The brood comb is taken first, as it is important to get this into the new hive as soon as possible, for if it gets chilled the brood will die; for this reason bee-driving should always be done on a warm day. The piece of comb is laid in the middle of the frame and cut with a knife as nearly to fit it as possible. If it is not large enough another piece can be cut and pressed in. The two ends of each piece of tape are brought round and tied together and the frame placed in the hive. As soon as you have got a few frames ready it is as well to put the bees into the hive, as they will cluster at once on the combs and keep the brood warm.

There are two ways of putting the bees into the hive; one is by shaking the bees in at the top. This must be done with a quick jerk, when they will all fall with a great thud into the hive, which should then be rapidly covered with the quilt. The other way is to lay a board about two feet square on a level with the floor-board. Over this lay a sheet and shake out the bees on to it, when they will proceed to run up into the hive. A little smoke may be judiciously used to guide them into the way they should go. I think this plan answers admirably on a warm sunny day, but I have seen it fail when the weather has been unfavourable and the bees have refused to run. When all the best of the comb had been transferred the same process was gone through with the second hive; but before uniting the second set of bees with the first lot they were each sprayed with some peppermint water.

Strange to say, bees seem only to recognise one another by the scent, and though they will savagely attack strangers yet if you give them all the same scent they are as amicable as possible and never discover that they are of a different family. In uniting two hives in the manner I have described you may if you like remove one of the queens, but if you are a beginner and feel a little nervous at hunting for the queen it does not matter in the least, as the two queens will settle the matter for themselves by fighting it out, and, as is usual, the weaker one will be destroyed. It may here be remarked that queens hardly ever use their stings, they crush each other to death. It has been only known in very rare instances to sting any person. Only one case have I heard of, and that was of a man who was holding her majesty between his lips, and I suppose she resented the indignity and took her revenge.

When the bees of the two hives had been united they were carefully covered over, first with a quilt of ticking cut the exact size, and then with two or three layers of bits of old carpet. It must be remembered that it is of the greatest importance to keep the hives very warm. In the centre of the quilts a small hole was cut for the purpose of feeding. It is not necessary to cut the piece right out, but make a snip on three sides so that you can turn the piece back when you require it.

It is as well to feed driven bees at first, unless there is a good supply of honey in the comb you have put back, otherwise, as a rule, it is only necessary to feed in the autumn and spring. If bees are fed up well with syrup up to the end of October, they will have filled their combs with honey sufficient to last them till the spring. It must be remembered that if you take the honey in supers at the end of the summer you must supply the bees with food to replace that of which you have robbed them.

In the spring the chief object of feeding is to induce the queen to begin breeding, so as to insure early swarms and a strong stock of bees. Of course it must depend a good deal on the season and the strength of your hives, but, as a rule, you may begin feeding in February. I have tried several kinds of feeders, and have at last come to the conclusion that, as usual, the simplest is the best.

The float feeders I do not recommend, the wooden float so easily gets warped, and then sticks so that it does not go down as the syrup is taken, and the bees cannot get their food. Neither do I like bottles turned upside down with muslin tied over; I have often found that the syrup drips much too fast into the hive. I daresay the fault may be mine, as I often see it recommended, but I only profess to be writing a book with my own experiences, and our misfortunes are often a useful lesson to our friends. I shall, therefore, describe what I have found by far the best and cheapest way of feeding.

First of all, get a piece of perforated zinc about three inches square, and having turned back the bits of quilt cut and given a puff of smoke into the hole to prevent the bees popping out, place the zinc just over the hole. Then get a one-pound bottle for holding honey with a *screw* cap. This will not cost you fourpence, and less if you get them by the dozen. In the lid make about a dozen small holes; then fill the bottle *quite full* of syrup, put the cap on, and turn the bottle upside down over the perforated zinc. Being almost air-tight the syrup does not drip, but is taken by the bees through the holes. The piece of zinc prevents the bees coming out when you remove the bottle for refilling. In this way there is neither trouble, nor risk of being stung by the bees.

There are many other modes of feeding, one lady I know feeds with moist sugar, but, as a rule, the syrup is the best.

I have given, at the end of the chapter, the best receipts taken from Cowan's book.

Spring and Summer Food for Bees. — White lump sugar, 10 lbs.; water, 7 pints; vinegar, 1 oz.; salt, 1 oz. Boil for a few minutes.

Autumn Food. — White lump sugar, 10 lbs.; water, 5 pints; vinegar, 1 oz.; salt, ½ oz.

(*To be continued.*)

ASSOCIATIONS.

BRITISH BEE-KEEPERS' ASSOCIATION.

Meeting of the Committee held at 105 Jermyn Street, on Wednesday, November 16th. Present, the Hon. and Rev. H. Blyth (in the chair), Dr. Bartrum, the Rev. George Raynor, Rev. F. G. Jenyns, H. Jones, Captain Campbell, J. M. Hooker, and the Secretary.

The minutes of the last meeting were read and confirmed.

Correspondence was read from the National Co-operative Society in reference to prizes to be offered for competition in honey at the National Co-operative Flower Show to be held at the Crystal Palace in August next. Resolved, That the Association do offer a silver and bronze medal in connexion with this exhibition.

In accordance with the suggestion made at the last meeting of the county representatives, it was resolved, That the rule relating to the competition for the Association's medals at county shows be amended, and that in future they shall be open to members of the County Association residing within such districts as shall be acknowledged to belong to the County Association.

It was resolved, That the annual general meeting be held either on Wednesday, February 8th, or Wednesday, February 22nd, as most suitable to the President of the Association.

MIDDLESEX BEE-KEEPERS' ASSOCIATION.

The usual Monthly Committee Meeting was held at 105 Jermyn Street, on the 16th inst. Present—Hon. and Rev. H. Bligh in the chair, Messrs. Gunn, Graham, and English. The Secretary reported that up to date receipts, although not so large as anticipated, were in excess of expenditure. The experts' reports were received and considered. About 165 members owning 776 hives were visited during the recent autumn tour. The statistical returns so far as returned were referred to Mr. Graham for tabulation. A hope was expressed that those members who had as yet failed to forward their returns to the Secretary would do so with the least possible delay.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts (see 2nd page of Advertisements).*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

PRICE OF HONEY.

[1361.] From time to time this question crops up, and receives more or less attention from the minority. Few men have done more in developing a local market, and thus showing what can be done, than your esteemed correspondent Mr. R. R. Godfrey; but that gentleman has yet to see that honey can be produced, and that profitably, at a lower figure than he himself quotes as the limit for profitable production. I presume he places 9*d.* per lb. as the average, but while I am willing to admit that the recent price at which comb-honey has been sold is certainly lower than it should be, I am convinced that extracted honey can be produced profitably at less than 6*d.* per lb.

Bee-keepers are, in a large measure, themselves to blame for being in such a hurry to dispose of their comb-honey as soon as it is off the hive. Possibly, it may be that few are prepared with a suitable room for storing it until prices advance; but, be that as it may, as soon as one begins to offer comb-honey he finds the market full, and it is long ere dealers can be persuaded that the article is really becoming scarce.

During the past season prices have ruled at about 7*s.* 6*d.* per dozen 4¼ × 4¼ sections, or 9*d.* per lb. Placing extracted at 6*d.* we get the average of 7½*d.* per lb.—and I fear it will not be in our time that prices will again rise higher than those figures.

If, therefore, we accept Mr. Godfrey's proposition, all had better fall out of the business at once: and indeed such would already be the case, were his statements founded upon fact. On the other hand, we shall probably accept things as we find them, regulated by 'supply and demand,' which, after all, speak the truth, look at the matter how we may. If the state of the market—which has tended only in one direction for several years past—places our product at a comparatively low figure, there will be found those prepared to supply and live at that rate. Greater economy, improved methods of management, planting by the acre for the double purpose of honey and hay, the larger number of stocks owned by one apiarist—will all prove important factors in producing the honey-crops of the future.

I have myself, in the past, given my voice against the falling price of comb-honey, but individual effort is

powerless in the face of supply and demand. I suppose we shall be equally powerless to persuade bee-keepers to go in more largely for extracted honey, and thus help to place comb at a higher figure. It is extracted honey that will be used among the masses by the tens of tons, if only placed before them at a low figure as it can be, and will be done, at a profit. During the past ten years comb-honey has come down something like 7*d.* per lb., extracted only 2*d.*; thus showing at once which has received the larger share of attention, and as a consequence has gone down rapidly in price, until our quotations now stand lower than those of America; a fact which may well receive careful attention. I do not remember the time when I was not satisfied with 8*d.* per lb. in bulk for extracted, and at this day consider myself well repaid at 6*d.*

The Honey Company has been blamed in several quarters for having induced present low figures. Of course, they have in a large measure been the cause: but the course which they have pursued is perfectly justifiable, and of advantage to the entire community. Surely those who bitterly condemn the Company are exceedingly narrow-minded in their methods of reasoning; or, do they reason at all? Can there possibly exist the mind that fails to grasp the fact that the ten tons sold to-day at 7*d.* or 8*d.* per lb. where one cwt. was sold a few years since at one-half more, shows a state of things vastly in favour of the producer as well as the consumer, in that the whole business is rendered more reliable, as it can be carried out upon a larger scale; and the time has now come when this important branch of agriculture is recognised in all quarters as one of the great industries of the country. —S. Simmins.

WINTERING BEES IN CELLARS.

[1362.] As the wintering of bees in cellars had been spoken very highly of by writers in the *B. B. J.* and successfully adopted in America I decided upon trying the plan myself, but so far my success has been very doubtful, and I now have to appeal for advice upon this subject through the pages of the *B. B. J.*

A fortnight ago I removed nine skeps and three stocks on bar-frames to an attic, which I made perfectly dark by boarding the windows up. The first week I scarcely lost a bee, but the second week the bees on the bar-frames came out by hundreds and perished on the floor of the attic. To try an experiment I removed one of the three stocks into another attic, placed the same level with the window, which I opened wide, and that part of the window I could not open I boarded up, so that the bees should not worry themselves against the glass. As soon as this stock was placed in the light the bees rushed out by hundreds through the open window, discharging very large quantities of excrementitious matter, and after a very short flight settled on and about the window and died, not a single bee returning to the hive. The bodies of the bees that left the hives were very much swollen and distended, and after settling appeared too weak to rise again. After awhile, and when I thought every bee had left the hive, I went and examined the combs, when to my astonishment I found four combs crowded with bees, and to all appearance as healthy as possible; the hive and combs were as clean as in the middle of summer. During my examination I may state not a bee left the hive, although I examined every comb thoroughly. I next removed the other two bar-frame hives into the light of day. Not more than a dozen bees from each hive went away, but they, like the others, perished almost directly. I may state the sun was shining brightly the whole of the time and through the window on to the hives. The three hives were fed with syrup and completed after they had been removed into the attic.

Now for the skeps, which are still in the darkened attic. I have not lost a bee from any of them so far, neither have they shown that restlessness which those in the bar-frames exhibited. Each skep has its own natural stores, as I never take honey from skeps unless absolutely necessary. Mr. Cowan does not treat very exhaustively upon this subject in his *Guide-book*, and I want you, Mr. Editor, to give me a little advice of what you would do with the nine skeps. I don't want to lose my bees, as it would be a dead loss of about 10*l.* to me next spring. Therefore, will you or some practical gentleman tell me whether it is advisable to let the skeps remain, or to at once remove them back on to their stands in the garden? The great loss of bees that perished in the snow last winter was the main cause of me trying this new-fangled notion.

Before concluding this long letter I would give a warning to the hon. secretary of my County Association. He had promised me a visit, and I had looked anxiously forward to that visit. He came (you will perceive he was a man of his word), 6.35 p.m. was the exact time. He departed 6.55 p.m.: he left me to catch his train. Revenge is sweet, Mr. Editor, and the next time that hon. secretary comes to see me and has another train to catch, he'll catch it not. I shall consider myself entitled to a few extra hours of his time, just to make up for lost ground.—Nil Desperandum, *November* 15.

[The climate of Canada and of the Northern States of the Union, where the thermometer ranges for many weeks below zero, differs so widely from our own that the systems of wintering bees in both climates cannot well be compared. There the bees are wintered in 'cellars' which are, partly at least, below the surface of the ground, and the temperature of which ranges from 45° to 55° Fahr. The temperature of an English attic during the winter is far more variable, and the degree of moisture also differs much. A bright sun raised the temperature of your attic, aroused the bees to flight, and chilled by a cold wind they perished. Others gorged with syrup, owing to high temperature, seeking an exit in order to relieve themselves of fæces, and unable to find their hives again, perished on the floor. Those in skeps having sealed and well-ripened stores and being domiciled in well-propolised skeps were less affected by the surrounding atmosphere and had less temptation to devour food and sally forth. Were the case our own we should on the evening of a cold day remove the frame-hives and the skeps very carefully without shaking to their original stands in the garden, since experience teaches that in the British climate bees winter better in the open air on summer stands than they do in cellars or darkened rooms. After removal leave the hives entirely alone until the end of February, and in bright weather when snow lies on the ground shade the entrances to prevent the bees issuing forth.—Ed.]

THE SEASON IN CANADA.—MR. COWAN'S VISIT.—MR. GRIMSHAW'S APIFUGE.

[1363.] The season of 1887 has come and gone, and has been rather an eventful one to bee-keepers as well as to the agriculturalist. The spring months were the finest and most promising we have ever had. Up till the beginning of June the prospects of an abundant yield in grain, roots, and honey, were most cheering, but a protracted drought set in and continued up till September, thus making us realise the force of Solomon's saying that 'Hope deferred maketh the heart sick.' The only province of this great Dominion that rejoices in the 'tree of life,' which is the outcome of 'desires' realised, is Manitoba, whose grain-crop is phenomenally large. The crops of the eastern provinces were literally parched up. Grain of all kinds shrunk to half their normal weight, while the root-crops fell short in nearly

like proportions. Nor were bee-men more fortunate than their agricultural neighbours. Flowers ceased to yield nectar early in July, and what promised to be one of the best honey seasons for many years past resulted in not more than half a crop, with generally a short supply for winter sustenance. But most evils bring something compensating in their train, and to bee-keepers this dark cloud soon presented a 'silver lining' in the form of a brisk demand and stiff prices for the stock they held, which in part have compensated them for the short crop. I venture to say you will hear or see little of Canadian honey in the English market this year, for our home supply is less than enough to meet our ever-increasing home consumption. The Canadian market is already bare, and many orders have to be declined because they cannot be filled. A like condition of things exists in the United States.

A notable incident in the history of bee-keeping in Canada this year was the presence of the two distinguished visitors who called upon us, note-book in hand. During Mr. Cowan's presence here the warning in one of Burns's pieces came fresh to my mind:—

'If there's a hole in a' your coats be sure he'll tent it,
A chiel's amang us tacking notes, and faith he'll prent it.'

The rough and ready way we have of doing things here did not, I fear, impress Mr. Cowan favourably. Whatever he may think of our people and their ways of doing things, of one fact I am sure he is satisfied, and that is, that we have a great country and a bright future. In bee-keeping circles doubtless he saw much to condemn, but some things are conspicuous by their absence here that are common in England, notably straw skeps and long-legged hives. I hope for the good will we bear him he will not be over-severe upon us, for we are a sensitive people and pugnacious when attacked. That we enjoyed Mr. Cowan's visit goes without saying, for Mr. Cowan is a gentleman whose company is always enjoyable. Nor did Mrs. Cowan make a less favourable impression. The readiness with which she adapted herself to our strange ways manifests her good sense. I verily believe both Mr. and Mrs. Cowan would make first-rate Canadians when once fairly initiated. I had the honour of a nice visit from them, and I hope it will not be the last.

I see Mr. Grimshaw is defending his Apifuge against all assailants. I have a bottle of it here, but have not yet tested it, and cannot speak personally of its good or bad effects, but I had an opportunity of seeing it tested for another purpose than that of keeping bees at bay. The swamps of Canada and the United States teem with mosquitoes in the spring and early summer. When Mr. Cowan visited Mr. Jones at Beeton, I accompanied him. While there we made an excursion into a neighbouring swamp in search of bee plants. Mosquitoes are especially fond of 'green' blood (we call everybody *green* who has lately arrived from the old country). The vicious insects 'went for' Mr. Cowan, and Mr. Cowan 'went for' the bottle of Apifuge he had in his pocket. Applying some of the contents to the wound from which the 'perky' critter had withdrawn its long proboscis, the usual swelling did not result, whilst another wound to which he did not apply the fluid very soon developed the ordinary symptoms of local poisoning. If Apifuge proves an effective remedy for mosquito bites, there is an unlimited field of usefulness for it on this continent, for mosquitos are a terrible pest to all who have to spend their time in the woods. Surveying parties, hunting and fishing parties, &c., often smear themselves with grease, paraffin, and other supposed protections, against their attacks. If Apifuge be a cure it will find a ready sale. Mr. Grimshaw may put this in his scrap-book, and three witnesses will testify to its correctness when called upon.—R. McKnight, *Owen Sound, Ontario.*

TWO SEASONABLE HINTS BY MR. G. M. DOOLITTLE.

[1364.] From *Gleanings*, October 15th, I cull two capital hints, which, although too late to be put in practice now, yet, if recorded, may get fixed on our minds ready for use next year. The first is an easy way of getting fresh brood into our apiaries. I am sure we are remiss in this respect. We should be gainers if we exchanged swarms or queens with our friends who live a few miles from us; our bees would be more vigorous and our honey yield would be larger.

Mr. Doolittle, who has made for himself a reputation as a queen-raiser, says, this year he has sent several virgin queens to selected apiaries at a distance to get them fertilised by drones in no way connected by affinity with his own strain at home. We know how much the worker progeny takes after the drone, consequently the advantage of getting fresh blood through the drone will at once commend itself to the merest tyro, and needs no commendation from me.

The next hint is about introducing queens late in the fall. Have you ever tried it with imported queens because the price was low, and called yourself hard names for parting with your money? This is the way Mr. Doolittle says he 'succeeds every time.' When a queen arrived, if the weather was unsuitable for opening a hive, he placed the travelling cage containing the queen on top of the queenless colony, under the quilt, to keep her warm until the weather became suitable for manipulation. Of course any other suitable place will do as well. Before proceeding to introduce her he prepares a cage of wire cloth by taking a piece of the latter article, about two-thirds the size of the frame, and cutting out a square inch at each corner. Now unravel or draw out the wires from each of the four sides for $\frac{5}{8}$ of an inch; you thus have a row of pointed wires $\frac{5}{8}$ of an inch in length all round your piece of wire cloth. The four sides of the wire cloth are now bent down at right angles an inch deep; you thus have a box an inch deep without a bottom. Take a comb from the hive, clear it of bees. If the stock you wish to introduce the queen to has a queen, you must now find and remove her of course. Having done so, place your new queen on to the comb, and allow her to sip at some unsealed honey while you place this large wire cage you have prepared over her (Mr. Doolittle clips her wings first), press the points of the wire into the comb $\frac{5}{8}$ of an inch, and your cage with the queen underneath it projects $\frac{3}{8}$ of an inch, thus giving the queen ample opportunity of keeping out of the reach of any of the bees who may be likely to treat her rudely until she has acquired the 'taste' of the colony. Mr. Doolittle advises she should be left from four days to a week before being liberated, remarking her time is not so valuable late in the fall as in the height of the breeding season.

I like the plan, and, if necessary, should take Mr. Doolittle's closing advice, which I make my closing advice also—'Try it!'—Amateur Expert.

THE NEW SECTIONS.

[1365.] Now that the Jubilee honey season is a thing of the past, and the prudent bee-keeper is beginning to turn his attention to the next campaign, it seems to me that many of us would like to hear something about the working of the new sections. For instance, have the four-way sections been better finished than those of same dimensions having only two ways? And how do those worked without separators compare in weight, finish, and readiness of sale with sections worked with separators. My own experience is taken from a limited area, as I have only about a dozen hives.

I have used the old-fashioned section $4\frac{1}{4} \times 4\frac{1}{4} \times 2$ with two bee-ways only, and also a new pattern

$4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{3}{4}$, the latter being worked without separators. Both kinds gave capital comb-honey, the thinner sections being equal or superior to the old ones in appearance and in weight, many being over a pound. But the difference is found when one comes to pack for market, indeed to handle at all; one little rub in lifting out of the case, one careless touch whilst lying exposed for admiration, and the pile for home consumption receives a new addition.

Separators for me next time, certainly. But I should like to know what the experience of others has been with regard to four-ways *versus* two-ways, for doubtless the latter form has superior safety in handling upon its side, even though both have been worked with separators. Is there really any practical advantage in the plan of allowing the bees access from one row to another? I am inclined to doubt it, though I should mention that my section-cases are suspended bee-space above the frames so that this arrangement itself gives the bees some choice of movement. Would those who have tried Mr. Lee's sections give us the benefit of their experience? I fancy I recollect Mr. 'U. H.' writing of them in high terms some time ago.—A. Fryer, *Ramsey, Isle of Man.*

BEE DISEASE.

[1366.] In Mr. Cowan's very interesting account of his visit to America, reported in the *Journal* of Oct. 27, speaking of Mr. Heddon, he says:—'He was, unfortunately, suffering from bee disease, which affects him in a very peculiar way, viz., by producing catarrh, so that he cannot open a hive himself without being attacked by this complaint.'

Now I have never heard of the 'bee disease' before, but on reading this it struck me very forcibly that I am suffering from it, and I should be glad if Mr. Cowan, or some other scientific bee-keeper who understands the subject, would give us further information about it.

I have been a bee-keeper for sixteen or seventeen years, and for the last three or four years I have suffered severely from what appears to be a violent cold in the head. Unlike an ordinary cold, it comes on suddenly without any warning, causes frequent sneezing, with continual running at the eyes and nose; sometimes it lasts only a few hours, sometimes a day or two, and during its continuance I feel more or less feverish, and very good-for-nothing. We have often noticed that I am almost invariably attacked on a Saturday night, and could not account for it; but though I am amongst bees more or less almost every day during the season, Saturday is a sort of field-day on which I am usually amongst my own bees.

I consulted my doctor, and he said it was not a cold at all in the ordinary sense of the word, but was analogous to hay fever, but evidently arose from some other cause as I suffer from it throughout the year. And this makes me doubtful whether it is produced by the bees, as it certainly does not always come on after manipulating a hive, whilst it comes on sometimes when I am away from home and have had nothing to do with bees. My doctor questioned me as to there being anything likely to cause irritation, such as the use of disinfecting powder, &c., in my dog-kennels; but it never occurred to either of us that it could have anything to do with the bees. I shall be glad to be satisfied on the subject one way or other, and possibly others besides myself may be interested in hearing more of the 'bee disease.'—A Bee-keeper.

[Mr. Heddon says that about ten years ago he began to notice an itching sensation in the ears. This would appear only occasionally at first, but it gradually extended to the mouth, and near the root of the tongue. Later the sensation was very severe in the roof of the mouth, just round and in front of the palate. The eyelids also swelled after first itching and burning. It was about three years after the first appearance of the irritating symptoms that he in any way connected them with bee-poison. He found that to open a hive and breathe the odour of the bees brought on the irritation at once. He, however, persevered in working among the bees, until the irritation and tingling sensation crept down the bronchial tubes all round about the lungs, until one night, after a day's work among the bees, he woke up with asthma. To make sure that bee-poison was the cause of these symptoms, he made several tests. He kept away from his bees for a fortnight, and got rid of all the symptoms except an occasional tingling in the ears. No sooner was he amongst his bees again than the former symptoms reappeared in a more aggravated form. Finding that on every occasion when he went near his bees he was similarly affected, he made up his mind to have hired assistance in his apiary, and since he has done so he has been free from the disease. But if at any time he comes in contact with the poison, the symptoms at once reappear. He says, on one occasion when he was quite well, not having been near the bees for some weeks, a bee flew past his face, and within a few inches of it, discharging poison as she passed. Half an hour afterwards he was seized with one of the most severe paroxysms he has experienced. For more than eight hours he could not speak aloud. All, however, passed off, and by keeping away from the poison he keeps perfectly well. When we knew and saw how Mr. Heddon suffered, we felt flattered that he should have personally conducted us over his apiaries, and deeply regretted that our presence and his courtesy should have been the cause of his suffering so much during the rest of the evening. We have heard of similar cases of poisoning, but, fortunately, they are very rare, and the remedy is obvious.—Ed.]

HALF A DAY WITH MR. HEDDON.

A TALK ABOUT HEDDON THUMBSCREWS, FRAMES, AND TIN RESTS.

[1367.] Being in Chicago recently on the cheap ten-days' excursion, I took the opportunity of running out to Dowagiac for a brief visit. I found Mr. Heddon all tired out with his labours as a leading official of the county fair, which embraces two other counties besides Cass, and is rather a 'big thing' in that part of Michigan. However, I accomplished my main object, which was to get some difficulties removed that had cropped up in the practical working of the new hive. They were briefly these: 1. Failure of the thumbscrews, which, in my experience, are apt to shrink and swell, if screwed tight, in a dry hot time; they swell when moist, cool weather comes, and have to be started with a wrench. In some cases the thread gives way. 2. The tightening up of both frames and sections, so that everything becomes practically immovable—'fixed fast as fate.' 3. The bending of the tin rests, as the result of which frames are thrown out of the level.

Mr. Heddon proved to me that none of these difficulties exist in his apiary, and I am inclined to think that with me they are partly climatic, partly the result of the screws and frames being made to fit too tightly in the first place; and partly for want of more skill and attention on my part. The climate of Guelph is subject to very great and sudden changes, and watch must be kept of these. It is not much trouble to go through an apiary and either tighten or slacken the thumbscrews, as may be needed. Mr. Heddon's frames and thumbscrews fit very loosely. As long as there is not a bee-space left anywhere there is no need of the frames being at all tight. As for the thumbscrews they are so loose that they wobble. Yet their holding power is so great that a case, dependent only on their grip, remained without the least of flinching when Mr. Heddon and I stood on a board resting simply on the eight frames. The tin strips

are made of heavy tin, and this, I think, is necessary in order that they may keep their places perfectly.

The one fault with the new Heddon hive—if fault it be—is that it requires the greatest accuracy in mechanical construction and very careful handling. A botch carpenter cannot make the hive, and a botch bee-keeper cannot manipulate it successfully. I am not sure that this is a fault. It is not desirable that bee-keeping should tolerate slovenly and careless ways. Both as a science and an art we should go in for its being carried on with intelligence and skill. The best results are to be had by the dexterous use of the best appliances. A partial honey crop can be got by slip-shod bee-keepers who are content to go by the rule of thumb, but it is to be hoped that this class will always be in the minority, and will become 'small by degrees and beautifully less.'

I am well pleased with my trial of the new hive for two seasons, notwithstanding the difficulties I have mentioned. I do not care to invert the brood-nest more than once, and that only when the comb is not built evenly and fully at the bottom of the frame. Apart from that I see no use in inverting. The interchangeable feature of the hive is a grand one and wonderfully simplifies manipulation. For making artificial swarms it is unrivalled. It is especially adapted for producing comb honey, the only kind I raise. I used the extractor one season and abandoned it, I think for the term of my natural life. I am old fogyish enough to wish it had never been invented. Adulteration, over-production, low prices, and evils resulting from interference with the internal economy of the hive, have grown out of its use. Raising only comb honey, and wishing to handle my bees as little as possible, the new Heddon hive suits me better than any other that I have tried, and I am simply anxious to give it the most skilful management of which its peculiar construction and functions admit.

Mr. Heddon's explanations convinced me that before putting bees into the new hive it is necessary to see that the frames and thumbscrews are in good and free working order. Anyone who proposes to adopt this hive to any extent should have a bit for making the thread holes for the thumbscrews, and personally attend to their proper adjustment. This done, if the screws have been, as they should be, boiled in tallow, they ought to work all right, no matter what the weather may be. A large number of bee-keepers, I was informed, have invested in the hive and only two or three have found any difficulty in the practical working of it. As yet, it has been but a comparatively short time before the public.

I was at first surprised at not finding more of the new hives in use in Mr. Heddon's apiary. There are only about fifty of them all told. But when I learned what an immense lot of old, bright, valuable frames of comb Mr. H. had on hand, I could readily understand that its substitution for the former hive, a most excellent one of its kind, must be a work of time.—W. F. Clark, *Guelph* (*Canadian Bee Journal.*)

La Cire des Abeilles et son Utilisation. *Par J. Dennler, traduction français par J. B. Leriche of La Motte-en-Santerre* (*Somme*). This is a translation into French of Mr. Dennler's pamphlet on *Das Bienenwachs und seine Verwertung*, which we reviewed on page 111 of the *Bee Journal* for this year. This pamphlet will be useful to French bee-keepers, but we regret that Mr. Dennler, who is a perfect master of the French language did not translate it himself, and thus avoid some of the errors and omissions which naturally occur when the translator has not a perfect knowledge of the language he is translating from. The work has certainly lost by the translation, as the history connected with the subject has disappeared, and thus one of the most interesting portions of the original is gone. A translation of the original has appeared in the columns of the *Journal* so that our readers can of themselves form an opinion of the usefulness of the pamphlet.

We have received from M. Luigi Sartori of Milan two sheets of diagrams which he has had prepared for illustrating the natural history of bees and bee-keeping, and which are entitled *Apiculture*. Plate 1 contains the scientific part, and on this we find no less than seventy-three carefully executed illustrations connected with the natural history of the bee. The illustrations are nicely lithographed in the natural colours of the objects represented. Amongst the best is fig. 22, a longitudinal section of the queen-bee. There are also good sections of the worker bee at figs. 38 and 39. Plate 2 represents the practical part, and illustrates hives and appliances in general use. There are 69 illustrations which are also described. Each plate is accompanied by a description of the figures, and we are glad to find that the descriptions are correctly made in the various languages,—a very rare occurrence. The plates are on stout paper, and measure 3 feet 6 inches by 2 feet 6 inches each. They will be very useful for lectures as they can be had with the descriptions printed in Italian, French, German, or English.

Echoes from the Hives.

East Limerick, November 9th.—The last was a very good season in this district, the best for the last four years. I averaged 75 lbs. each from nine hives (including 104 sections and 16 lbs. extracted honey from one hive), and leaving twelve stocks for winter each provided with 20 to 25 lbs. of store—no sugar used. The average would have been much larger but for two swarms escaping.—East Limerick.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

Major-General G.—*Fumigation required.*—The eggs are *not* those of the wax-moth, but we would recommend that you fumigate all your spare combs with rather strong sulphur fumes. If the combs are badly infested it might be well worth your while to melt down your combs. Particular care should be exercised in thoroughly cleansing out your hives in the coming spring.

G. King, Jun.—*Ivy Honey.*—The two pieces of comb contain ivy honey. This honey has a cheese-like appearance. It solidifies very quickly after it is stored. Ivy is the last good supply of food the bees have before going into winter quarters; it follows the heather-honey. The peculiar property of these two honeys is that they toughen almost as soon as stored; and it shows the perfect fitness of things, for a late large supply of almost any other kind would require evaporating, and there would be danger of its causing dysentery in the hive. Ivy honey does not possess any attractive taste, but it has been found suitable for winter and spring feeding.

J. Wilton.—The loss of time entailed on a stock after swarming, while waiting for their new queen to lay, may vary from eight days at the least, to perhaps twenty days. The old queen with the swarm lays as soon as cells are ready, which is sometimes the case in twenty-four hours.

Correction.—Page 505, line 8 from top, *for* Apifuge and Fumigators *read* Apifuge and Slotted Dividers.

Received from Mr. A. I. Root, Medina, Ohio, his 'Illustrated Catalogue and Price-List.'

COWAN'S GUIDE BOOK.

A NEW EDITION of this Work will shortly be published. Intending Advertisers must forward Copies of their Advertisements during the present week.

THE
BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, Cambridge Circus, W.C.

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Editorial, Notices, &c.

'FEED YOUR STOCKS.'

Every successful bee-keeper knows, that if at any time a stock is allowed to be short of food material damage arises, and that such damage increases in geometrical ratio the longer the scarcity prevails. Further; feeding must be done at the right time to attain the best results, and nothing short of the best results should ever satisfy any bee-keeper. We have reason to believe that a large number who really consider themselves advanced bee-keepers are often behindhand in those various attentions to their bees which are so essential to success, and that this negligence arises, in many cases, through the owner not making such full use of the bee-literature of the period as he might reasonably be expected to do.

We are at all times anxious to afford any, and every, assistance to bee-keepers who may require it, and our columns are always open for any question to be put and discussed. In fact, the free discussion of moot points has helped on bee-keeping, perhaps, more than anything else. Many questions that are sent to us tend to show that the sender has either neglected to study the published experience of others, or, having scanned it, has not thought out the hints and information stored therein sufficiently well to obtain the full benefit of the advice given. Some of our readers may say, 'If bee-keeping entail such an amount of study, then I shall give it up.' Not so; it is not bee-keeping, but *successful* bee-keeping that requires our very best energies to be unsparingly applied to it. The bee-keeper who is contented to have a hive or two in his garden merely because they look appropriate to the surroundings, and not because he feels any real interest in them, or wishes to bestow any particular care upon them, must be likewise contented with probably no surplus honey, or, at the most, but a very small quantity. As an illustration of this let-alone policy, we may mention that we once visited a lady who had a hive of bees which she requested us to examine; for, as she pathetically put it, 'I cannot think what is wrong with them, they have been in the garden for four years, and I have had no honey.' We opened the hive, removed about 15 lbs. of honey, and offered suggestions as to future management. The poor bees had been totally neglected the whole of the time, as the hive had never been opened since its arrival; their owner had never read anything as to their management. To those who can afford but little time for reading, the *Journal* may be useful as giving hints in season, but we would earnestly recommend the studied perusal of every work on bees that our reader can either buy or obtain the loan of. May we suggest that those who are the fortunate possessors of such books will kindly let their neighbours have them to read, and so obtain mutual advantage by educating and enabling them to take an intelligent part in any discussion that may arise, besides training them to become critical observers, from whom hints may hereafter be gleaned?

Reading is, and ever will be, the best food, but practical lectures should by no means be overlooked. We would, however, point out that for a technical subject like bee-keeping it is important to make methodical notes of what we read, if the full benefit of such reading is to be enjoyed. Let the notes be classified as well as indexed, and it would then become a very simple matter to turn up all accumulated information on any given subject by consulting that portion of the book devoted to it. In cases where the source of information is a book, or periodical, belonging to the compiler, it would be sufficient to note somewhat in this manner—

Fertile Workers.	Heddon.	Success in Bee-culture.	Page 33.
	Cook	Manual	,, 84, 179.

While in the case of hints noted from borrowed books, or gleaned from personal correspondence, a short, clear extract should be made, quoting the source whence derived. Such note-books would imperceptibly grow into most useful mines of information, not only for 'the chiel amang us takin' notes,' but for his friends. Foolscap size would obviate them becoming bulky so soon, and would therefore enable them to be the more easily circulated for mutual information, with permission to copy, or, being produced at our ideal friendly conversazione, would form a most interesting basis for comment and comparison. Different systems could then be brought side by side, and results noted which, by comparison with other note-books, would go far to show which particular system, or arrange-

ment, suited any particular district best. As bee-keepers, we know full well that it is by hearty co-operation alone that our bees are enabled to carry out their manifold duties. Let us, therefore, adopt similar tactics; by so doing many mishaps will be avoided, and in case disease attack our bees we shall, in virtue of our increased knowledge, be able to detect it in such an early stage as to reduce the risk to a minimum; or, in the event of an accident, be fitted to deal promptly with it, without waiting for the arrival of a more experienced friend, or the next issue of the *Journal* to help us out of our dilemma.

THE STRUCTURE OF FLOWERS WITH REFERENCE TO INSECT AID IN THEIR FERTILISATION.

(*Continued from page* 501.)

The last but not the least remarkable example of the adaptation of flowers to the visits of insects for the purpose of fertilisation to which I will allude is that of the Orchidaceous family of plants. The flower of the orchis is very abnormal. Its genera vary amazingly in the structure of the anther, the column, the lip, and indeed of all parts, but in the consolidation of the style and stamen they are all agreed. 'The flowers,' to quote the words of an eminent modern botanist, Otto W. Thomé, 'are rarely solitary, usually in spikes, racemes, or panicles, and the superior perianth consists of two whorls, each of three leaves. Of these the inner whorl is always irregular and often has a spurred lip or labellum, the remaining five leaves of the perianth forming together the galea or helmet. The stamens are united with the style into a fleshly column or gynostemium, upon which the anthers are so placed as to stand above the stigma, which is but little developed and consists usually of a large viscid surface. Of the six stamens which are probably originally present only one, less often two, attain perfect development. When only one is thus developed it is always opposite the labellum, but when two, then one is on each side of the gynostemium. Only a few orchids have the pollen-grains perfectly distinct; usually they are united together in fours, and these again into granular masses, or the grains are combined by a viscid fluid into a club-shaped mass or pollinium within each anther lobe. The two pollinia terminate at their lower end in a pedicel consisting of the dried-up viscid substance, connected together by a viscid gland or rostellum, as in the bee orchis, or distinct as in *Orchis morio*.'

If we dissect a flower of the early purple orchis we shall find that the stigma is bilobed and consists of two almost confluent stigmas. It lies under the pouch-formed rostellum. The anther consists of two rather widely separated cells, which are longitudinally open in front; each cell includes a pollen mass or pollinium. The pollinium consists of a number of wedge-shaped packets of pollen grains united together by exceedingly elastic thin threads. Below the pollen mass is the elastic caudicle. The end of the caudicle is firmly attached to a viscid button-shaped disc. Each pollinium has its separate disc, which has a ball of viscid matter at its under side. The rostellum lies immediately below, and the balls of viscid matter lie concealed within it. Let me now try to explain how this mechanism acts. Suppose an insect, say a bee in search of honey, to alight on the labellum, which forms a good landing stage, and to push its head into the chamber, at the back of which lies the stigma, in order to reach with its proboscis the end of the nectary, or what does quite as well to show the action, push a sharply pointed lead pencil into the nectary. Owing to the projection of the pouch-formed rostellum it is almost impossible to push an object into the gangway of the nectary without touching the rostellum. When this is effected one or both of the viscid balls will almost invariably touch the intruding body. These balls are so viscid that they stick firmly to whatever they touch, and the viscid matter sets hard and dry like cement within a minute or so. As the anther cells are now open in front when the insect withdraws its head, or when the pencil is withdrawn, one or both pollinia will be withdrawn firmly attached to the object, sticking up like horns. The firmness of the cement is necessary, for if the pollinia were to fall sideways or backwards they would never fertilise the flower. Now let us suppose the insect to fly to another flower, or insert the pencil with the pollinium attached into another nectary. If this be done at once it is evident that the pollinium will be pushed into or against its old place, the anther cell. How then can the flower be fertilised? This is effected by a very beautiful contrivance. Within a minute the pollinia, by the contraction of the minute disc to which they are attached, move downwards to an angle of about forty-five degrees from the first upright position. When the insect sucks the next flower the pollen masses come in direct contact with the stigmatic surface. The stigma is so very viscid that it is certain to pull off some of these pollen packets and rupture the threads. The whole pollinium is scarcely ever retained by the stigma, so that one pollinium serves to fertilise several flowers. So economical is Nature in her workings that even a few pollen masses are not unworthy of her sedulous care.

Of all the pollen-carriers, and consequently flower-fertilisers, bees are the most assiduous. Attracted by the gay colours of the corolla, sweet scent, or the prospect of honey, they visit most flowers that are incapable of self-fertilisation. That bees can distinguish between one colour and another, and that they exhibit a preference for certain colours, has been clearly proved by Sir John Lubbock and others. The bodies of some bees and the legs of others are so admirably adapted for the collection and carriage of pollen that it is almost impossible for them to visit any flower in pursuit of honey without bearing away a large quantity of pollen grains. The body of the humble bee (*Bombus terrestris*) is the best adapted for pollen carrying. Lepidoptera stand next in order of importance to bees as pollen-carriers. Their long proboscides enable them to drain nectaries which less favoured insects cannot reach. The despised wasp is not without its use as a fertilising agent; for, according to Mr. Darwin, 'if wasps were to become extinct in any district so would *Epipactis latifolia*.'

Honey, I need scarcely say, is the principal object of attraction to bees, butterflies, moths, and many other insects which assist in the work of fertilisation. It is secreted by specialised organs known as nectar glands. 'In the flower,' according to Dr. Goodale, an eminent American botanist, 'these glands consist usually of specialised parenchyma, not unlike the secreting surface of the stigma.' 'Nectar glands,' continues the author, 'may occur in any part of the flower, upon its bracts or upon some part of the flower-stalk near it. From the nectar glands of proper floral organs the secretion of nectar is generally copious, and is prone to collect in minute cavities such as shallow pits, or in conspicuous special receptacles, the so-called nectaries. The period of most copious secretion of nectar usually coincides with the maturity of the anthers or of the stigma.' Here we perceive another of Nature's beautiful contrivances for carrying out her purposes. Just at the time when the pollen is ready to do its work of fertilisation, or the stigma to receive it, a copious supply of honey both attracts and rewards the insect pollen-carriers.

The odours of flowers must be classed amongst the most potent attractions of insects. White flowers are more generally fragrant than those of any other colour. As examples of the accuracy of this proposition I would

refer to those delicately-scented flowers the lily of the valley, the jasmine, and the butterfly orchis. I cannot do better than quote the words of Mr. Darwin in explanation of this:—'The fact of a large proportion of white flowers smelling sweetly may depend in part on those which are fertilised by moths requiring the double aid of conspicuousness in the dark and of odour. So great is the economy of Nature that most flowers which are fertilised by crepuscular or nocturnal insects emit their odour chiefly or exclusively in the evening.'

I have ventured to call attention to a comparatively large number of important facts, and for the purpose of giving my authorities have quoted largely. If these quotations have the effect, as I trust they may, of directing attention to and inducing a perusal of the works referred to, this paper will not have been written in vain. It will naturally be asked, Why has Nature planned all these contrivances to bring about cross-fertilisation? Mr. Darwin has clearly proved that plants which are the product of cross-fertilisation are both stronger in constitution and more prolific in seed-bearing than those resulting from close-fertilisation. Another and more important result may have been designed, namely, the origin of new varieties and new species. If we consider how much the skilled nursery-man has effected, within living memory, in the direction of producing new varieties in such well-known plants as roses, strawberries, pelargoniums, primulas, and a host of other flowering and fruit-bearing plants, we may readily understand how pollen-carrying insects may in the countless ages that have passed have been instrumental in effecting changes of a similar character in plant development. That pollen-bearing insects such as bees and moths have been largely engaged in helping to clothe this earth of ours with some of its most beautiful forms cannot, I think, in the present state of knowledge be doubted. Devout minds, like that of Christian Conrad Sprengel, will perceive the wisdom and goodness of the great Creator, operating by means of natural agencies, in producing beautiful forms of plant life to delight the senses and supply the wants of His creature man. Even the atheist, on thoughtful consideration, must admit that the vegetable world, and especially the flower-bearing portion of it, affords ample evidence of design.—W. G. Wheatcroft (*The Journal of Microscopy*).

MY BEES.

By Mrs. Reginald Bray,

Author of 'Family Feats,' 'Ten of Them,' 'We Four,' &c.

(*Continued from page* 514.)

Chapter III.—Uniting.

The next morning I hastened out to my bees, and stood gazing at my three straw skeps in a very dissatisfied mood.

I felt that when there were such hives as bar-frames no real lover of bees would endure such old-fashioned things as straw skeps.

'It seems easy enough; does it not, Watson?' I said, as the latter drew near.

'What? bee-driving? Yes, ma'am. I should like to see all these old hives got rid of.'

'I wish I had not bought that new straw skep,' I said somewhat mournfully, for I had given a guinea for it; and as I wanted to make my bees pay, I felt it would be very extravagant to begin my bee-keeping in this somewhat reckless manner. Happy thought, 'Of course they will change it.'

I rushed for Neighbour's catalogue, and was soon engrossed in making up my mind which one I would have. I finally decided on one to hold ten bar-frames, price 1*l.* 12*s.* 6*d.* I did wish hives were not quite so expensive, but all one had to do to reassure oneself was to say, 'At least, I ought to get fifty pounds of honey,' and then work out a rule-of-three sum, fifty pounds at 1*s.* 6*d.* equal 3*l.* 15*s.* Why I shall pay it off in no time; of course there are cheaper hives, but the best are generally cheapest in the end.

I decided that Watson should go up to London with the straw skep, and change it for the new bar-frame, which was to be sent down. I felt it a trial that he could not bring it back with him, but as it would be decidedly cumbersome, and entail having a cab to the station, I controlled my impatience and managed to wait until it arrived the next day. How beautiful it looked. I brought it into the drawing-room and played with it as if it were a new toy. I pictured the frames filled with honey, and thick with clustering bees. I lost myself in a happy dream of delight, and was of no particular use or pleasure to my family for the rest of the evening.

The morning broke with a sunny, cloudless sky. It was impossible to have chosen a better day. Breakfast was a meal scarcely to be thought of, the household affairs were left to take care of themselves. Orders were given that if even the Queen arrived, I was not to be interrupted; and, armed with smoker, scissors, and tape, Watson and I were soon ready for our work.

One little boy of four years old, whom I may here say promises to be the only worthy son of his mother, entreated to watch. I was somewhat doubtful, for I did not wish him to run the chance of being stung.

'I don't care,' he replied; 'I don't care; no—not if I am stung on the nose.'

I could not resist this, and accordingly stationed him behind a low yew hedge on a bank where I thought he would be quite safe. Others of the family came to look on at a respectful distance, lessons went to the wall for some time, and the servants were invited to 'come and see,' but they seemed to have too great a respect for bees to care to avail themselves very much of the privilege.

Watson and I had put veils over our heads, and I had carefully tied my sleeves at the wrist, but we were determined to do our work without gloves. I am afraid we were a little over-confident, we had an idea that our own bees would not sting us. It is impossible to lavish a wealth of affection upon any object and not expect an adequate return. The table with the frames and tapes for the combs was placed about three yards in front of the hives, and I had a chair there so that I might sit down comfortably and tie them in.

We gave the bees a puff or two of smoke. Very little, because as I said, we had great confidence in those bees, and I must say the first hive fully responded to our trust.

The anxious moment came when Watson turned the hive upside down. I *longed* to do it, but it was so heavy that I knew I could not lift it. He placed it upside down in the pail, I hastily put an empty skep on the top, and the driving began. Watson did most of the rapping, for I can assure you it is pretty hard work on a hot summer day; but every now and then I took my turn at that delicious 'thump, thump,' all round on the lower part of the hive. Every now and then we peeped in, and saw the bees running up as merrily as possible. At last, we had evidently got them all in the skep, and then standing them down as we had seen Mr. Joy do, we commenced cutting up the old hive and transferring the comb into the frames.

Oh, why had no kind friend warned us (as, my bee friends, I am warning you) to do all this part in some shed at a distance, for though the bees we had driven were behaving angelically, we were irritating the other bees which were yet for to come past endurance! Of course we should have given them some good puffs of smoke, so that they might have been employing themselves with their honey, but—we did not.

Our comb was soon all tied in, the frames put in the hives, and then came the moment to shake the bees in. 'I must do that part,' I cried, and with great pride lifted the skep. A sharp shake, a few puffs of smoke, and the bees had run down among the combs as successfully as under Mr. Joy's experienced hands.

We felt very proud of ourselves as we covered the hive up with a quilt, and turned our thoughts to the second hive, which we were going to unite with the first. Above all, we had not received a single sting.

Watson, as he had done before, lifted up the second hive, and put it in the pail, and I placed the skep over. At this moment I felt a sharp prick upon my foot. Not being so hardened to stings as I am now, I retired for a minute into the greenhouse to extract it.

'These bees seem very nasty,' said Watson, as I returned. 'They have stung me once or twice.'

Then all at once, I cannot tell you why or wherefore, but those bees arose, and in a moment were upon us. The air was filled with infuriated—shall I say demons? it is the only suitable word. There was nothing for it but an ignominious flight, and we simply turned and fled.

I shouted to the children to rush to the house, for I dared not go near them. Watson and I rushed frantically between the thick rows of peas, as we knew that bees are not fond of anything bushy. He fled into the apple-house, where they left him in the dark, but they waited outside the door for him till he came out. I ran to the house. I felt two or three bees inside my veil, which is a most unpleasant sensation. I had not been nearly careful enough in tucking it in at the beginning. I tore it off hat and all, and was really greatly relieved when I got indoors to find I had only had six stings.

After a while, when I had recovered from the shock, I went to see after Watson. Alas! he had fared very badly; far worse than I had. He had not tied his sleeves at the wrist, and the bees had got up them and stung him fearfully. He got tired of counting the stings, but there must certainly have been over a hundred.

However, like an Englishman who never acknowledges himself beaten, he was quite ready to return to the fray; and I do think we deserve some credit, for we went back and we finished those bees, and united them safely with the others. I will say we gave them a thorough good smoking, and we carefully tucked in our veils, and put on thick gloves.

I was none the worse for my few stings, but Watson was quite ill for a day or two, which I think is not to be wondered at. The only wonder is that he was not much worse.

I must not forget to mention that one bee singled out my small boy, and actually stung him on the nose. His face swelled until it was a sight to behold; his eyes vanished almost entirely, and looked like slits. This was slightly mortifying to me, as my mother, who had not seen the children for some time, was coming that day. Of course I wanted the family to look their best, and it was hard to have one of them bearing a strong resemblance to a fat little porker.

As for the boy himself, he stoutly maintained that he did not care a pin; and so far from being frightened, he still remains *the* one of the family who takes a keen interest in bees.

Now I hope that what I have said will not discourage young bee-keepers. There is not the slightest reason why they should be served as we were. I have driven bees since, and assisted on many occasions without having even been stung. The reason I have given the history of our misfortunes is that I think there is much to be learned from the failures of others, and I shall be very glad to feel that the perusal of them may impress upon beginners the great care which is required.

Our bees went on most prosperously, though our pleasure in them was a little damped for the time. It was too late to put on supers that year, but I looked anxiously forward to the next summer and a plentiful harvest.

The chief trial I had was in leaving my bees. Every August we left the suburbs and went into the country for three months. I cannot describe how hard it was to bid farewell to my bees and leave them, knowing that when I returned in November the bees would be all shut up in their winter quarters, and I should see them no more till the spring.

(To be continued.)

Selected Query.

[3.]—*Is that known as 'Good' candy suitable for winter feeding, or for spring feeding? and how is it made and in what way is it given to the bees?*

'Good' candy is excellent food for the bees during winter or early spring, but it is much too expensive for general use if made properly. Where a colony has no honey or syrup whatever, it is far superior to dry sugar or candy, as these alone cannot possibly support a colony through the spring without the addition of a solutive, which cannot be obtained in sufficient quantities by condensation. Where a colony is simply short of stores, I should not use 'Good' candy. The candy is made by mixing icing sugar—this sugar is far the best, but expensive—with liquid honey until it is stiff enough to be moulded into any form. It is best given on top of cluster, first laying a piece of thin wood—such as dividers are made of, having several holes cut in it of a size to allow a bee to pass through—on the top of the frames, and then placing a cake of the candy, not more than half-inch thick, on top, covering a sheet of paper or enamel quilt over all and the quilts on that. If it is a very dry season and the bees have no honey, water must be given in the hive.—W. B. Webster.

I have never used 'Good' candy. To appearance, it is much the same as a well-made sample of candy cake. It is highly spoken of in America as a winter bee-food, or for sending bees and queen by rail or otherwise. It is made by mixing liquid honey and the finest icing sugar in proportions so as to form a stiff dough, then placed over the frames the same way as candy is used in this country. I should say it would be more expensive than candy-cake, and would serve the purpose no better than the latter.—William McNally, *Glenluce, Scotland.*

As I so very strongly condemn winter feeding of bees in any form, except sealed food in the combs, so I never use any candy for winter feeding. If bees have been so shamefully neglected as to require winter feeding, I believe candy as made from Mr. Cowan's receipt will keep some of them alive.—William Carr, *Newton-Heath Apiary.*

'Good' candy will do, but is expensive for spring feeding. Any other article but sealed stores can be called a substitute only for winter use, and a poor substitute at the best. To make the above candy, add only sufficient liquid honey to finely powdered loaf-sugar to make the whole into a stiff paste, thoroughly incorporated. Let the mixture be too dry rather than too soft, and apply the same above the frames immediately over the cluster. —Samuel Simmins.

The candy known as 'Good' candy is more suitable for spring food, and is made of honey and sugar. But for winter food I like a soft candy made of all sugar, and as this soft candy wants very careful making it should only be undertaken by those who have a knowledge of sugar-boiling.—G. J. Buller.

For winter food I should prefer candy to 'Good' food, but for spring food I should prefer the latter to any

other. In making, it is more safe if the honey be liquid: when so worked up there is least fear of the food becoming too soft from atmospheric action, as when granulated honey is used. Your honey being in any suitable vessel, add thereto, finely powdered, best lump sugar, well mixing the two until sufficient sugar is added, so that you may handle the food without scarcely soiling the fingers—remembering it is better to mix a little too stiff than too soft. The food may be given in a dummy or frame-feeder.—J. H. Howard, *Holme, Peterborough.*

I find Mr. Cowan's recipe for candy very good, viz., ¾ pint of water, let it boil, then stir in 6 lbs. of lump sugar: spread a piece of paper in large saucer and pour your candy into it. There is certainly the trouble of making the candy, but I feel sure that any bee-keeper who has tried the candy *versus* Porto Rico dry-sugar feeding will adopt the *candy*.—W. Woodley.

'Good's Candy'—so named from the inventor—is more suitable for spring than for winter food—being more liable to deliquesce than ordinary candy, when laid upon the frames. It is made by mixing very finely powdered sugar with liquid honey, to the consistency of stiff paste or dough. It is generally laid upon the frames beneath the quilts, but a better plan is to place it near the brood-nest in a hollow dummy-frame similar to the dry-sugar feeder, with a sufficient number of openings to allow the bees to obtain free access to the candy.—George Raynor.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor of the "British Bee Journal," c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to Mr. J. Huckle, *Kings Langley, Herts* (see 2nd page of Advertisements)

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

PATENTS RELATING TO APICULTURE. (580.)

[1368.] In September of last year I supplied you with a list of the patents relating to apiculture applied for during the years 1884, 1885, and 1886, which you inserted on page 433 of the *Bee Journal*. I then promised that I would from time to time supply you with further information on the subject of these and future applications for patents.

In fulfilment of that promise I now send you for publication a complete list, showing those patents which have since been completed and 'sealed,' those 'abandoned,' and those since applied for. This list has been abstracted from the official books at the Patent Office.

It will be seen that only eight of the patents have been completed and *sealed*, out of the nineteen for which patents were applied during the above three years, and thirteen *abandoned*.

The desire to protect inventions from being adopted and copied by others appears to be on the increase. The number of applications for patents during the present year is seventeen as against nineteen for the three previous years. None of these have been completed and sealed.

The time for lodging complete specifications has in several of these cases expired, but until the official list is published at the end of the year there is no ready means of knowing which of these are completed and which abandoned.

It may be well to point out that no person is justified in advertising anything as 'Patent' until the patent has been completed and sealed. In the case of a provisional acceptance, all that may be said is, 'Patent applied for.'—John M. Hooker.

No.		Date of Application.	Provisional Accept. (or 9 Months.	Complete Acceptance	Patent Sealed.
		1884.			
7513	Hole—Bee-hive	May 10	May 30	Abandoned	
9794	Clark—Bee-hives	July 5	July 22	Mar. 29,'85	May 26,'85
		1885.			
490	Mason & Buchan—Bee-hives	Jan. 12		Abandoned	
9459	Abbott—Bee-hives	Aug. 8	Sept. 11	Abandoned	
9793	Lyon—Metal ends	Aug. 11	Sept. 25		Dec. 1, '85
12654	Hopkins—Feeding bottles	Oct. 22	Dec. 1	Sept. 14,'86	Nov. 19,'86
			1886		
1545	Ridge—Reversible frames of bee-hives	Dec. 11	Feb. 9,	Abandoned	
7071	Wray—Separating honey from the comb	July 1	Oct. 13	Abandoned	
8333	Lyle & Estrick—Honey substitute	July 22	Aug. 14	June 1,'86	Aug. 6,'86
		1886.			
4315	Stone & Perry—Honey sections	Mar. 27	May 7	Abandoned	
5333	Allen—Sections for supers of bee-hives	April 19	April 23	Abandoned	
6821	Ridge—Ventilating beehives	May 24	June 22	Abandoned	
6951	Robins—Bee-hives	May 24		July 2,'86	Sept. 7
8290	Dixon— " "	June 23	July 27	April 6,'87	June 10,'87
8813	Meadows—Honey extractor	July 6	Aug. 27	June 22,'87	Sept. 2, 87
9239	Welch—Section-case for use in bee-keeping for producing comb-honey	July 16	Aug. 19	Abandoned	
10314	Hooker—Uncapping the cells of honey-comb on one or both sides	Aug. 12	Sept. 10	July 20,'87	Sept. 27,'87
11493	Shorten—Apparatus for feeding bees	Sept. 9	Oct. 15	Abandoned	
12207	Castle & Watts—Bar-frames used in bee-hives, adjusting same	Sept. 25	Oct. 27	Abandoned	
		1887.			
229	S. Simmins—Union bee-hive for securing comb-frames	Jan. 7			
1891	J. A. Abbott—Bee-feeder	Feb. 4	Feb. 26		
1892	S. W. Abbott—Holding comb-foundation in bee-hives	Feb. 4	Mar. 2		
2414	James Lee—Bee-hives and boxes, hanging and invertible frames, sections, modes of fixing comb-foundation in frames and sections, and removing sections containing honey-comb	Feb. 16	July 2		
2832	Abbott—Frames, boxes, or cases used in bee-hives	Feb. 23	Mar. 16		
3014	Grose—Reversing bar-frames for bee-hives	Feb. 26			
4832	Elliott—End for regulating distances and reversing bee-hive frames	Mar. 31	May 11		
6193	Dixon—Spring bar-frame lifter	April 28			
8259	Abbott—Wiring comb-frames used in bee-hives	June 8	July 2		
8534	Jenkins—Bee-hives and fittings	June 15	Aug. 17		
8776	Green—Bar-frame and bee-hive	June 18	Aug. 24		
9667	Dixon—Automatic apparatus for extracting honey	July 9			
12500	Gilbert—Hive	Sept. 17			

No.		Date of Application.	Provisional Accept. for 9 Months.	Complete Acceptance.	Patent Sealed.
		1887 *(continued)*.			
13824	Blow—Containing and exhibiting sections of comb-honey	Sept. 22	Oct. 19		
15636	Blow — Fixing comb-foundation in bee section-boxes used for obtaining honey	Nov. 15			
15637	T. B. Blow—Fixing comb-foundation in bar-frames in bee-hives	Nov. 15			
16152	Silbree — Feeding bees, &c.	Nov. 24			

WINTER-PASSAGES, &c.

[1369.] As a few remarks have been made in your valuable *Journal* on the above subject, I would like to give my plan, which I have found very successful, both in wintering and in working. I use a crown-board, and in making the hive I leave about three-sixteenths of an inch space over top of frames; and as bees invariably cluster at the top of frames, they can move with ease to any place they like, in fact I have noticed that the top bar of frames are covered with bees. I give them no extra covering except the watertight roof: I consider it a much better plan than disfiguring the combs by making holes.

My crates are made with slats of wood at bottom, the breadth of sections used except bee-space, and glass on two sides so that the sections are kept clean from comb or propolis; they are slid on the hive without killing a single bee, and if too much space is not given there will be very little comb built between crate and frames.—GEORGE TURNER, *Nov.* 21.

HOW TO DO IT.

[1370.] Appears from Mr. Saddler's letter to be so very plain and easy that every bee-keeper ought, if next season is anything like favourable, to be able to say that he has done it. I have done it for several seasons with some stocks, but my average has not reached the 100 pounds yet. During the past season I have taken from twenty-seven stocks just over a ton of honey, average eighty-three pounds per hive. I use same size top-bar as does Mr. Saddler. He says, Throw metal ends away, and he ought to have added—'and broad-shoulders too,' for it is impossible to have either on bars to manipulate them as he describes. Our respected Editor, Mr. Raitt, and a host of others, in fact, most of the large honey-producers of the country, use the 15½ inch top bar. Is it not time, therefore, that the B. B. K. A. altered the rule, so that the standard top-bar shall be *at least* 15½ *inches long?*

It seems a strange contradiction for nearly all the large producers to use this bar and to write in this *Journal* in favour of it, and then for a beginner to be advised by this same *Journal* to use the 17-inch top-bar simply because that is the 'standard size.'—ROBIN HOOD.

THE NEW SECTIONS.

[1371.] Your correspondent, Mr. A. Fryer, page 516, asks the question, 'Have the four-way sections been better finished than the two-way ones this year?' Briefly let me give my opinion. The greater part of the sections I have used this year were those having four bee-ways, and so far am highly pleased with them. The bees work them out and fill them quicker than the two-way ones; but wherein they excel most is the way they are built up to and on the section edge, thus giving a greater appearance of comb surface. Bee-keepers should see that the sections have passage-ways at least three-sixteenths wide, viz., a two-inch wide section should be one five-eighths at narrow part. The less the sections touch each other at corners the better; one quarter of an inch is sufficient. Having an ordinary well-made crate with sides full depth, four bee-way sections, and slotted zinc separators, I think we have the most perfect super procurable. Speaking of separators, I would never think of dispensing with these, whether the sections were one and a half or two inches wide. I tried three crates of the narrow size this summer without separators, and am glad I did not experiment further in that direction. The narrow sections with separators were better filled over than the wide ones.—WILLIAM MCNALLY, *Glenluce, Scotland.*

SEPARATORS.—THE NEW SECTIONS.

[1372.] Mr. A. Fryer's letter (1365) raises a practical point of considerable importance to comb honey-producers.

All the sections I had in use last season were the ordinary one-piece two bee-ways, with the exception of forty-eight of Lee's new pattern having four bee-ways, and so arranged to give through slotted dividers a vertical bee-way between the sections from end to end.

It is generally understood that to secure perfectly built sections a rapid honey flow is a *sine quâ non*. My apiary is situated in the midst of a district consisting of a sandy soil, which, combined with the drought, caused the honey flow to be extremely slow and very limited in quantity. Without exception the one-piece sections of comb honey had an unusual number of pop-holes, in many extending the whole length of the bottom. My experience of working the thinner sections without separators coincides with Mr. Fryer's, as they are all bulged more or less so as to necessitate in packing for market the same relative positions they bore to each other in being filled. This disadvantage is quite sufficient to condemn the system advocated by some of discarding the use of separators. I also say separators for me with any size section.

In giving these thinner sections a trial the question arose, Will the bees fill a crate containing twenty-eight of the thin sections as quickly as a crate of twenty-one 1-lb.; and if so, after debiting the extra cost of foundation, number of sections, and separators, required with the thin sections, will it pay from the £ *s. d.* point of view? My experience gives a decided negative.

I now come to Lee's sections, and the difference in the perfect way these were filled out even to the very corners in comparison to the others, taken with the undoubted fact of their being more rapidly filled, was to me remarkable. On a close examination to my mind the reason was apparent. Through the vertical passages between the ends of sections, extending through the slotted dividers, a continuous cluster of bees was seen from end to end, very evidently secreting the wax for comb-building.

These vertical passages, combined with the slotted dividers, the four bee-ways, and the facility with which full sheets of foundation can be securely and rapidly fixed, taken together, convince me of their superiority, and I shall not in future use any others.

With an apiary varying from 60 to 100 stocks, situated on the borders of an immense area of heather, the strength (which the folding one-piece sections lack) of Lee's sections to bear the strain of extracting is another point of considerable advantage.

Relative to sections without separators, it may be worth repeating that in the large Canadian Exhibit at the Colonial I took special notice that out of many thousand sections worked without separators not one in ten could be found but what the face of the comb would touch a plane surface and always be liable to get bruised.—W. SOAR, *The Apiary, Valley End, Chobham, Surrey.*

AFRICAN BEES.

[1373.] The bees which are natives of Africa are but little known to most of the readers of the *B. B. J.*; they may have heard of them being carried in boats on the Nile, and there the information ceases. Nor are they described or ever mentioned in any of our 'bee-books,' in fact, little attention has ever been paid to them, if indeed any of our bee-men have the knowledge. Now, having in the course of my reading met with some incidental descriptions of these African bees and their manners and customs, I have copied out the most interesting from two volumes that may possibly not have fallen in the way of all of the readers of the *B. B. J.*, and give them below. Both are from trustworthy authorities—one being the *Life of Bishop James Hannington*, who was murdered in East Equatorial Africa in 1886; and the other, the *Heart of Africa*, by Dr. Georg Schweinfurth, the German imperial naturalist. From the extracts I append, it will be seen that the African bee resembles the Syrian in her appearance and ferocious temper. The quotations give graphic pictures of the enormous colonies that would seem to characterise the race, for I have never heard of any other honey-bees dwelling together in such prodigious numbers.

Dr. Schweinfurth's experience was gained on the Nile about eleven hundred miles south from Alexandria, just outside the boundary of Egypt proper. It is evident that the Doctor's translator is not acquainted with the natural history of bees, or he would have avoided some curious renderings. He writes, vol. i., p. 73:—

'A place was soon reached where the stream takes a remarkable bend, and proceeds for eight miles in a north-easterly direction. This place has the singular name of Dyoorah-el-Esh, or the sack of corn. Now, as the north-east wind, of course, was adverse to any north-east progress, it was necessary that the boat should be towed by the crew. As the rope was being drawn along through the grass on the banks, it happened that it disturbed a swarm of bees. In a moment, like a great cloud, they burst upon the men who were dragging; every one of them threw himself headlong into the water, and hurried to regain the boat. The swarm followed at their heels, and in a few seconds filled every nook and cranny of the deck. What a scene of confusion ensued may readily be imagined.

'Without any foreboding of ill, I was arranging my plants in my cabin when I heard all around me a scampering, which I took at first to be merely the frolics of my people, as that was the order of the day. I called out to inquire the meaning of the noise, but only got excited gestures and reproachful looks in answer. The cry of "Bees! bees!" soon broke upon my ear, and I proceeded to light a pipe. My attempt was entirely in vain, in an instant bees in thousands are about me, and I am mercilessly stung all over my face and hands. To no purpose do I try to protect my face with a handkerchief, and the more violently I fling my hands about so much the more violent becomes the impetuosity of the irritated insects. The maddening pain is now in my cheek, now in my eye, now in my hair. The dogs from under my bed burst out frantically, overturning everything in their way. Losing well-nigh all control over myself, I fling myself in despair into the river; I dive down, but all in vain, for the stings rain down still upon my head. Not heeding the warnings of my people, I creep through the reedy grass to the swampy bank. The grass lacerates my hands, and I try to gain the mainland, hoping to find shelter in the woods. All at once four powerful arms seize me and drag me back with such force that I think I must be choked in the mud. I am compelled to go back on board, and flight is not to be thought of.

'In the cooling moisture I had so far recovered my self-possession that it occurred to me to drag a sheet from my chest, and thus, at last, I found some protection; but I had first gradually to crush the bees which I had enclosed with me within this covering. Meantime, by great self-denial and courage on the part of my excellent people, my large dog was brought on board to me, and covered with cloths; the other, an animal from Khartoom, was unfortunately lost. Cowering down convulsively, I lingered thus three full hours, whilst the buzzing continued uninterruptedly, and solitary stings penetrated periodically through the linen. Every one by degrees became equally passive as myself; at length a perfect silence reigned on board, the bees subsided into quietness. Meanwhile, some courageous men had crept stealthily to the bank, and had succeeded in setting fire to the reeds. The smoke rose to their assistance, and thus they contrived to scare away the bees from the boat, and setting it afloat they drove it to the other bank. Had the thought of the fire occurred at first our misfortune would have assumed a much milder character, but in the suddenness of the attack every one lost all presence of mind.

'Free from further apprehension we could now examine our injuries. With the help of a looking-glass and a pair of pincers I extracted all the stings from my face and hands, and inconvenience in these places soon passed away. But it was impossible to discover the stings in my hair; many of them had been broken off short in the midst of the fray, and remaining behind produced little ulcers, which for two days were acutely painful. Poor "Arslan" was terribly punished, especially about the head, but the stings had clung harmlessly in the long hair on his back. I was really sorry for the loss of my nice little dog, which was never recovered, and in all likelihood had been stung to death. These murderous bees belong to the striped variety of our own honey-bee.

'A mishap like ours has been seldom experienced in the waters of the White Nile. Consul Petherick, as his servant informed me, had once to undergo a similar misfortune. Our own grievance was not confined to ourselves: every boat of the sixteen which that day were sailing in our track was pestered by the same infliction. No imagination can adequately depict the confusion which must have spread in boats where were crowded together from sixty to eighty men. I felt ready in the evening for an encounter with half a score of buffaloes or a brace of lions rather than have anything more to do with bees, and this was a sentiment in which all the ship's company heartily concurred. I took my quinine and awoke refreshed and cheerful, but several of the ill-used members of our party were suffering from violent fever. My own freedom from fever might perchance in a measure be attributed to my involuntary vapour bath. I had been sitting muffled up for some hours in my wet clothes through the heat of the day, and no vapour-bath more effectual could be contrived. Among the crews of the boats which followed us there were two deaths, which ensued as the result of the injuries which had been sustained.'

Bishop Hannington's adventure occurred 700 miles farther south, between Zanzibar and Lake Nyanza, and not far from the latter. His biographer says:—

'On Tuesday, September 8th, 1885, the long caravan was again in motion. The greatest care had now to be taken to guard against an attack from the rear. The path skirted the forest for a long distance, and every bush concealed a lurking foe. Mr. Thomson's caravan was here set upon and very roughly treated, while some of his cattle were killed. Mr. Jones writes: "As we were descending a steep track a rush was made upon the sick who were being carried in the rear by a host of Wa-Kikuyu. The men in charge of the sick fled, but they, strange to say, revived and flew for their lives, escaping with a few blows from clubs. When we heard the alarm the Bishop and some of our men ran back to the scene of action, and a volley put the enemy to flight. At the end of the plain there is a fine tree, towards which all our men at once made to rest beneath its shadow. They had scarcely sat down when they were attacked furiously by an enemy worse than the Wa-Kikuyu. A vast swarm of bees came down from the tree and settled upon the caravan in thousands. The men ran for their lives, many of them dropping their loads. The bees covered the ground for some 200 yards in every direction from the tree. The Bishop bid the men who had dropped their loads return and fetch them, but though they tried they found it simply impossible to do so. Many of them actually cried like children, and called upon their mothers; every one was stung more or less. The Bishop made the attempt to reach the deserted loads himself, but was driven

back. He then draped himself in his mosquito-curtains and tried again, but before he got the loads he was stung most pitifully. My own eyes were so closed by the swelling from stings that I was almost totally blind for two days."

H. W. Lett, M.A.

PARALLEL *VERSUS* RIGHT-ANGLED FRAMES.

[1374.] This, at present, is one of those vexed questions we can all agree to differ upon, as it is almost entirely a matter of personal preference. We can, however, differ to agree that there is one plan of the two (having a balance of evidence in favour of it) which should be adopted or adhered to, and the other discarded.

In the first place, the support given to the right-angled theory is almost overwhelming by its influence. Mr. Cowan heads the list by arranging on this principle perhaps the most complete bee-hive extant—the Cowan—and, in his indispensable pamphlet on wintering bees, supports his preference by insisting on provision being made for sufficient and proper ventilation, without cold draughts, as a necessary condition for successful wintering. Next follows Mr. Cheshire, who arranged his hive on the same plan, but I perceive by the illustrations in his new work that he has *changé tout cela*, and adopted the parallel system. Then comes Langstroth, and lastly our own 'Useful Hints,' who, on p. 379 *B. B. J.*, follows under the standard of thorough ventilation by the right-angled method.

Although the subject has been well discussed in past numbers, current inquirers will not be at the trouble of wading through ancient history; and even if they did, they would be scarcely able to come to a definite decision amongst such a mass of conflicting evidence from highly respectable authority on both sides. They would have to think it out for themselves even then. At any rate such was the case with myself, the result being that I decided to convert my hives from the mixed styles of arranging frames to broad shoulders placed parallel. This was done twelve months ago with the best results in wintering. I have not the presumption to place my opinion against those of the giants in bee-keeping above named, but as the question was one upon which the doctors disagreed, I, a poor patient, went to Nature for her simples, and, finding them beneficial, adopted them in the meantime. I now give my ideas in favour of the parallel plan, seeing that it is truth alone we seek—the right successful way.

For some years I paid much attention to plants from various latitudes and altitudes, and I always found (as we can find in all cultivation under artificial conditions) that the more I imitated nature in the surrounding conditions of the plant, the greater was the success; and, conversely, the more nature was interfered with, the more numerous were the failures. I take it as a law in both animal and vegetable physiology, we may keep Alpine plants in gardens, exotics in greenhouses, and bees in hives, but the closer we copy the fundamental conditions of their habitat the better they thrive.

Question is, How do bees build when left to themselves? They will build so as to hide the queen, keep the direct rays of light from striking the brood-combs, and conserve as much heat and freedom from draught as possible; they will also commence building as far away from the entrance as possible with these objects. These are theoretically their proceedings in a hollow tree or a cleft amongst rocks. Their conduct, practically, can well be ascertained in the case of swarms in skeps, about which, by the way, there is some difference of opinion. The most recent evidence is given by N. P. Lochill (p. 384), who says he has seen over a hundred skeps this season and not one had the combs rectangular. Mr. Webster (p. 432) went into his apiary and found a strong lot of evidence in favour of the parallel plan. In this month's *Record* Mr. R. R. Godfrey (no mean authority) states that only three out of seventy-eight skeps he has examined this season had their combs built straight to the entrance.

Next question is, Do bees require a thorough ventilation, or is the bad air to escape by the doorway? Let us bore a hole anywhere in the hive and ask them: they answer by filling it up. This is simplicity itself, and one can successfully imitate them in their objections to crevices and openings by wintering down with American cloth quilts, shiny side down. We tuck our quilts in, use chaff-covers, dead-air spaces, and what not, to keep bees warm and dry in winter: why should we then permit unwarmed air (which must enter) to circulate through the very heart of the clusters, and when February and March come, through the very heart of the brood-nest also, and this when the temperature should be 20° to 30° higher inside than out. Thus do these disc-like currents reduce the temperature at the risk of chilling brood and killing bees. We are directed to examine in early spring as to condition of stores, and turn up the edges of quilts on right-angled frames, therefore, in a few seconds, the whole brood-nest is bathed in a current of external temperature. With parallel frames no such thing happens, for the current passes along the edges of the combs. Again, when snow lies on the ground and is struck by the rays of a winter's sun, the sloping alighting-board allows dazzling rays to be reflected up amongst every seam of bees, especially as entrances are to be left open full width. With weak stocks one is compelled either to use a dummy-board on each side of the right-angled frames, or cram them to one side, when bees can and do get by their thousands (on returning from cleansing flight) *along* the entrance into the space behind the dummy, to be starved to death. Another objection I have to right-angled frames is, that it is difficult to manipulate at the side of hives, especially if these be arranged on long stands, besides disturbing and attracting the notice of all leaving or returning bees when in full work by operating at the side, whereas by the parallel method we can quietly roll back the quilt, and insert or remove frames at pleasure, without the necessity of using smoke or any other frames than those exposed; we can even work slowly up to the last few frames with very little excitement, the quilt over the front frames remaining tight and propolised down. Another advantage of paralleled *versus* right-angled frames is that we can have a super or two of sections on a hive, and if there be a likelihood of swarming give timely relief by adding a sheet or two of foundation at the back; these may be renewed at pleasure or used for extracting. By this means we accommodate the daily increasing population without disturbing either brood-nest or sections. Further, it is generally understood that bees will store surplus in the furthest obtainable space away from the entrance, so that filled parallel combs may be found in the rear, instead of half-filled right-angled combs. I also find my last sheet of brood facing doorwards with the opposite side of the comb well stored with honey, which may be extracted without injuring brood or contaminating honey. When working on the right-angled system I found brood and honey stored in anything but an orderly fashion.

The question of encouraging the spread of foul brood by practising the parallel plan is a very broad one and separate from the present. I know there is much to be said on the other side, but I will conclude with the quotation given by 'Useful Hints':—'Let each man be fully persuaded in his own mind. Prove all things. Hold fast that which is good.'—R. A. H. Grimshaw, *Horsforth, near Leeds.*

BEE-KEEPING IN SOUTH AUSTRALIA.

[1375.] Your correspondent Mr. Campbell in his letter (1341, page 494) casts some considerable doubt on the accuracy of the reported yield of Messrs. Coleman & May's apiary at Mount Barker. I find on page 439 of the *Canadian Bee Journal* for 1885 a long account of this same apiary, cut from the *Adelaide Observer*, which states that twenty-seven hives produced six tons of honey in 1884; the best hive giving 414 lbs. of extracted honey, with an average of 11½ lbs. a day for four days in the height of the season, and for some time maintained a record of 60 lbs. a week. Another collected 112 lbs. in three weeks. By natural swarming the twenty-seven hives increased to 109 between 1st October and 31st January. The above gives an average of about 498 lbs. per hive spring count. Evidently the Colonials do resemble the Americans in having a good honey country. I certainly see no reason to think they are trying to 'chaff' the Britisher.—W. M. Graham, *Edmonton*.

[The above figures will also be found in the *Journal*, Vol. XIII., p. 352.—Ed.]

BEE DISEASE.

[1376.] A bee-keeper's letter (1366) in last week's *Journal* reminds me of the singular effects of a sting that I received last summer. It was just beneath the eyebrow, where it joins the nose, and the pain was very acute, as in the case of other stings about the eyes. As the first pain subsided I was seized with a violent paroxysm of sneezing—sneezing about a dozen times right off. I then tried to go on with the manipulation upon which I had been engaged, but I had to give it up, as I kept on sneezing so constantly. I covered up the bees as well as I could (between the sneezes) and retired to the solitude of my dressing-room with all the symptoms of a violent cold in the head, and my face swelling freely. Alkaline drinks, inhaling ammonia, and other remedial measures, had no apparent effect; I could only sit in my chair, and sneeze and blow my nose alternately. Not only that, but I gasped for breath. The inside of the throat seemed to swell up, and the blood also rushed into my head. The cold in the head lasted over the next day, and then subsided.—T. F. L.

DISTRICT WORK IN GLOUCESTERSHIRE.

[1377.] I think it will soon be four years ago that the Gloucestershire B.K.A. sent Mr. C. Browne to lecture here; that lecture did a vast amount of good, in showing what can be done with bees under the improved method of bee-keeping. After the lecture a local Society was started, the numbers increasing every year, till now we have twenty-nine members. I hope it will not be out of place to add, that until this year the parent Society took no notice whatever of us except receiving our subscriptions. I am pleased to state that this year we have been more leniently dealt with, in that the parent Society have placed at our service an extractor (Meadows' guinea patent), which, by the way, does its work exceedingly well. We also get two *Bee Journals* for distribution, which are much appreciated.

Now, a few words on our doings. We have meetings every fortnight during the summer; these meetings are held at one or other of the members' apiaries, when there is generally some practical work to be done. In the winter we have monthly meetings, when papers are read and discussions follow on the different subjects. We also during the winter get our orders together, and co-operate in sending them to the best and cheapest manufacturer: in doing this, we obtain our goods much cheaper than by sending orders individually.

On September 27th we held our second annual supper, which was served up in one of the case-making rooms of Messrs. Penley & Son, pyrotechnists. The chair was taken by Mr. Penley, jun. After supper, Mr. Slade, Hon. Sec. to the Association, gave a very able address on 'How to Increase the Usefulness of a Local Society.'

This year three members have gone in for honours, obtaining two first prizes and three second prizes, and one third-class certificate.—A. J. Brown, *Local Secretary, Bradley, Wotton-under-Edge, Gloucestershire.*

Der praktische Imker. *Lehrbuch der rationellen Bienenzucht auf beweglichen und unbeweglichen Waben, von C. J. H. Gravenhorst. Vierte, vermehrte und verbesserte Auflage, mit III. Abbildungen in Holzschnitt und einem Titelbilde.* (Braunschweig, 1887: C. A. Schwetschke und Sohn.) This, the fourth edition of the *Practical Bee-keeping*, has been entirely revised and re-written by our old friend Mr. C. J. H. Gravenhorst. The author is the editor of the *Deutsch Illustriertes Bienenzeitung*, one of the leading German bee papers, and being a practical bee-keeper he knows what he is writing about. In these days when every one who begins bee-keeping thinks he ought to write a book, bee literature such as it is, is plentiful enough, and the difficulty, for those who are not experienced, is to discern the evil from the good. Here is a work proceeding from a writer who is thoroughly acquainted with the subject, and who has consciously neglected no part of the literature connected with it. It can safely be placed in the hands of every one, for although Mr. Gravenhorst uses the 'Bogenstulper,' a hive in the use of which he has become an adept, he is impartial, and his views are broad enough to cause him to describe the practical working of other hives and systems. As a specimen of fairness where we might expect bias, we may point out that besides the 'Bogenstulper' no less than fourteen other hives have been described and many illustrated, such, for instance, as the Langstroth, Heddon, and others. Bee-keeping has made great strides during the last few years, so that what was recommended in 1883 has had to give way to more modern ideas. The author seems equally well versed in our English, as well as American methods, which he clearly describes, without bias or prejudice, so that the work will be found useful to every bee-keeper. He describes the Luneberg straw hive used by the Heath bee-keepers, and gradually works up to the moveable comb hive, showing the great advantage of this over the old system, and demonstrates that, notwithstanding their great skill, the hands of the Heath bee-keepers are tied by their adhering so tenaciously to their old straw hives, and that the time must come when only moveable hives will be used. The number of pages has increased from 252 in the third edition to 280 in this, and the engravings from 52 to 111. Although, as the title implies, the book is a practical one, the author recognises the fact that the bee-keeper can only arrive at the best results when his practice is based upon a knowledge of the natural history of the bee. Bearing this in mind he treats of the theory in simple language and just sufficiently to assist the bee-keeper without wearying him, as so many books do. What we know of the author and his writings is sufficient guarantee that the information he gives can be relied upon. We are glad to see that he describes and illustrates, on page 115, the stomach mouth of the honey bee and that he agrees with Schönfeldt as to its uses and functions. On page 118 a correct illustration is given of a comb. In this there are cells of almost every shape, and they correspond to many of those we have cut from combs in England, on the Continent of Europe, and even during our rambles in North America this year, some of which we were able to show at our last Conversazione. Not the least interesting feature of the work is the introduction of the portraits of some of the great bee-keepers. Amongst these are Dzierzon, Kanitz, Weygandt, Butleroff, Berlepsch, Schönfeldt, Langstroth, and others. In the sixth chapter, amongst other things, the various diseases of bees are described.

Hilbert's remedies for foul brood, as well as the carbolic acid treatment described in the former edition, as practised in Germany, are also given. The work is well printed, and the engravings are equal to the justly celebrated ones of the *Illustriertes Bienenzeitung*, and show extreme care in their production. We congratulate the author on having the assistance of so excellent an artist. We think it highly flattering, and a sufficient recommendation of the work, that it has reached its fourth edition in a country where more books and bee-papers on bees are published annually than in any other country in the world. Our German reading friends will find in *Der praktische Imker* a work which will well repay their study, being that of a man who stands in the highest rank as a bee-keeper in Germany, and which has now become a standard of reference on all matters connected with bee-keeping. We hope the present edition may meet with the same favourable reception as that accorded to the former ones, and that it will tend to promote the more advanced methods of bee-keeping.

CEYLON FOLK LORE.

The Honey-drop Riot.

'How great events from little causes spring.'

A Mussulman went to a shop
To buy a pot of honey:
This Mussulman he spilt a drop
When counting out the money.
Upon this drop did light a fly,
And as she sucked the nectar,
A lizard that watched hard by
Came out and straight attacked her.
The shopman's cat was prowling round,
And quick the lizard sighting,
She sprang upon it with one bound,
Through lungs and liver biting.
The Mussulman's lean, hungry dog
Beside the door was lying;
But up he sprang, and all agog
(The wretched cat espying),
He seized her with his great long teeth,
And heedless of her squealing,
He shook her till she ceased to breathe,
And was devoid of feeling.
The shopman to the rescue flew,
And taking up a cleaver,
He chopped the poor dog clean in two,
And forced him thus to leave her.
The Mussulman his 'tulwar' drew—
Than he no man was bolder—
He cut the shopman's head right through,
And clove him to the shoulder.
A little girl was passing by,
Who saw the horrid murder;
She ran, and as she ran did cry
Till all the city heard her.
They rushed from east, they rushed from west,
With spears, or swords, or daggers;
Each arms himself as he can best,
And down the street he swaggers.
The Magistrate doth hither ride,
With '*posse comitatus*,'
And in the ranks on either side
He finds a vast 'hiatus.'
A hundred here, a hundred there,
Upon the ground are lying,
And mothers weep and tear their hair,
And frantic wives are crying.
And all because a Mussulman
Once bought a pot of honey,
And spilt a little from his can
When counting out the money.

R. T. Andrews.

All the Year Round, September, 1887.

Echoes from the Hives.

Honey Cott, Weston, Leamington, November 28th.—During the month now drawing to a close we have had some rough, stormy weather, which has given me a severe cold, and confined me to the house, so that I have had to content myself with looking at the hives from the window. There have been some sharp frosts for several days, but this last week it has changed again, and bees are to-day, and have been for three or four days, very much on the wing, thus giving them a chance to better stand a long spell of stormy or frosty weather, which in all probability will soon be here. Naughty tomtits here again.—John Walton.

NOTICES TO CORRESPONDENTS & INQUIRERS.

A. Dee.—*Entrances.*—You should have your entrances open to 6 in. as soon as there is no longer any danger of robbers. Give up the zig-zag slides, as they are the cause of your losses. We have since 1884 always placed our frames 1¼ in. from centre to centre for the winter, and we believe that our uniform success in wintering is due in a great measure to this. There is nothing better than chaff for placing between hives and outer casing. When our bottomless box is placed on the top of the frames, chaff is poured into it, and is allowed to run over and fill the space. No patting is required.

A Disheartened One.—*Hives broken into.*—In the evening push some crushed camphor through the entrance of each hive. The next evening carefully carry each hive into a warm and well-lighted room. Avoid any shaking. Let them stand half an hour to quieten, shading the entrances. Open up No. 1, shift the combs about 4 in. apart. Use no smoke if you can help it. Ascertain the queen is there, using a feather dipped in a very weak solution of Calvert's No. 5 carbolic acid. Repeat this process with No. 2, but remove the queen; then place the frames having bees on into No. 1 alternately with its own, making room for those which will now be removed from No. 3 in the same manner after its queen has been removed. Let the light well in between the frames before introducing the strange ones. Replace on stand; put a board before the entrance for the bees to mark when next they fly.

Expectancy.—*Honey.*—We consider the sample of honey to be pure and of good quality, and it is our opinion that it has been gathered from clover and wild flowers.

Replies to 'Useful Hints'' Tomtits Problem have been received from Eric Lewis; Samuel Peter Kirkby; Darcy Grimshaw; T. A. Mackereth, jun.; G. W. Wells. These have been forwarded to the compiler of the 'Hints' for him to deal with.

Received from Messrs. Abbott Brothers several samples of honey jars. These are well designed, ornamental, and attractive to the eye. They will be found very serviceable for table honey.

COWAN'S GUIDE BOOK.

A NEW EDITION of this Work will shortly be published. Intending Advertisers must forward Copies of their Advertisements during the present week.

Business Directory.

HIVES AND OTHER APPLIANCES.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
Appleton, H. M., 256A Hotwell Road, Bristol.
Baker, W. B., Muskham, Newark.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
British Bee-keepers' Stores, 6 George Yard, Fenchurch St.
Burtt, E. J., Stroud Road, Gloucester.
Edey & Son, St. Neots.
Howard, J. H., Holme, Peterborough.

THE
BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, Cambridge Circus, W.C.

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Editorial, Notices, &c.

ANOTHER HONEY COMPANY.

Most of the readers of the *Bee Journal* are familiar with the work that has been achieved by Mr. Simmins, by his hand and by his pen, for the advancement of apiculture generally, but chiefly in his apiaries in Sussex. He has had the foresight to perceive the growing capabilities of the bee-keeping industry, and he has had the energy to assist in its development, and so to make it subservient as a means of livelihood. It has given us much pleasure to note the gradual extension of his business from his small apiary at Crawley to what are called the Great Sussex Apiaries; and now it would appear that the time has arrived when it is considered advisable that there should be a further development, and that it should enter upon a new phase.

We see, from our advertising columns, that the Great Sussex Apiaries, the sphere of Mr. Simmins' labours, will soon be converted into a Limited Liability Company, for the purpose more especially of extending the honey industry. The other ramifications of the business conducted by Mr. Simmins, namely, the trade in queens and the Factory at Brighton, will also be taken over by the Company. We gather that these will continue to be conducted under the supervision of Mr. Simmins; and we cannot entertain a doubt but that, if the same energy and business tact that have up to the present time been noticeable in the conduct of Mr. Simmins be continued when employed in a larger and wider sphere, the operations of the Company must be attended with a great measure of success.

The present appears to be a favourable opportunity for the extension of the honey industry. The value of pure honey, both as food and medicine, is now more generally recognised. Pure British honey has proved itself equal in quality to that of any other country on the face of the earth. The amount of honey imported into this country, when taken in connexion with that exported to other countries, is not (as we hope to demonstrate in an early issue) so large or formidable that it may not be easily overtaken by bee-keepers in this country when larger tracts of land are devoted to the production of honey-producing plants, and when, at the same time, those engaged in the work make a fuller use of all the experience that has been gained and take advantage of the better appliances that have been manufactured of late years.

We deeply regret the continued depression of the agricultural industry. It is distressing in the extreme to see extensive farms lying waste without occupants. But the farmers' extremity may be the bee-keepers' opportunity. These unoccupied farms in many cases may be had at very low rentals, and it is a question which exercises many minds, to what extent these 'lands' may prove available for the extension of the production of honey. We are of opinion that at the present time Companies, with capital and with experienced persons at the helm, have before them an opportunity for progress in apiculture which should not be permitted to pass by.

We tender to Mr. Simmins and his fellow-workers our best wishes for the success of their new undertaking.

'BLEEDING' SECTIONS.

'Bleeding' sections are the bee-keepers' bane in winter. In summer his troubles are more numerous; they follow one another in more rapid succession: he is busy in head, heart, and limb. Always on the alert, with his faculties more or less at a tension, his cares are varied—'bee' cares I mean, of course—so that one more or less makes comparatively little difference. First, there is the weather; next, there is the honey flow; then comes a real, solid grievance in the shape of a swarm led off by his best queen, and just as they have nicely taken to the sections! Perhaps, to further aggravate the case, the whole lot has absconded, whither it is impossible to follow. Then the dealer has neglected to send off by first train the new hive you wired for yesterday, and a further supply of sections and foundation with it. Some of your stocks want another tier of sections on or they will make up their minds to swarm, and the season will be gone, and with it your only prospects of profit. Bother that dealer! I shall have to give my orders elsewhere next year. But who is that that has stopped at the garden-gate? It is the railway delivery van. Good! But as usual the hive is smashed, and the dealer is out of thin foundation; will forward it to-morrow! Was there ever anything so tiresome! And so you fume and frown, and get hot, and want a *febrifuge*, and the dog has to get out of the path pretty sharp, and then you are called to tea, and go with bad grace and

worse appetite, because you are anxious to get back to the 'blessed bees.' Bother making toast! I cannot stay for that. Give me some bread and butter; I want to go! And the patient wife looks up to see what is the matter.

But it is winter and the days of fogs and damp. The joys of harvest and the pleasures born of counting up a goodly array of well-filled sections have nearly obliterated the remembrance of the small troubles incidental to the honey-glut, and the troubles and anxieties of 'spring dwindling' were yet unborn; when, lo! on examining my sections that I had held over for a better price, I find they are all spoilt by 'bleeding.' 'Why is it, and what can I do with them?' This is the wail of woe that comes to me from amongst a shoal of smaller troubles and difficulties. What help or consolation can I render? Sections will sometimes 'bleed' when filled with thin, watery honey: privet, for example, but it is highly improbable that any such has been gathered this dry season, when honey is unusually dense and ripe. Then, again, the thinner the sealing the greater the liability to 'bleed' at all times. Happily the craze for very thinly sealed comb-honey has subsided considerably during the past five years. Sections should never be removed until fully sealed; but I presume most of my readers are aware that if allowed to remain on too long the bees not only darken the surfaces of the comb by the heat from the hive and their traffic over it, but that they thicken the cappings of the cells also, by adding a second coating to give additional strength to the sealing, and very frequently by drawing long streaks of propolis across the surface of the sections as well. Consequently, for appearance, sections require to be taken as soon as practical, but for utility they require to be left on the hives as long as you possibly dare without endangering the pearly whiteness of the sealing.

The most fruitful source of 'bleeding' is *damp*—cold, damp air. We may learn a lesson from the bees. They make their larder on the top and outsides of the cluster, consequently in the coldest and dampest parts of the hive; to prevent 'bleeding' they strengthen and thicken the sealing of their stores in autumn. We, anxious to secure our share of their labours, take the sections as soon as practicable; consequently they are liable to damage by damp, as we discover to our grief. The remedy is to keep them dry, not necessarily *warm*, but dry; and exclude the air and the rapid changes of temperature in this climate from them as much as possible. My method of storing mine may assist some of you. My house is small, and the store-room accommodation in it is limited; consequently when I removed into it, I procured some boxes from the grocer's, each will hold about 130 sections. I cover the bottom of each box annually with a clean sheet of paper. On this I lay strips of wood, $\frac{1}{2}$ in. × $\frac{1}{4}$ in. On these a layer of sections, having cleaned them all free from propolis; on the layer of sections another sheet of paper, a set of strips and another layer of sections, and so on to a third layer, and a sheet of paper to finish, and a close-fitting lid with plinths all round, each box holds three layers, and are fairly secure from noxious taints and flavours. But perhaps you will be inclined to think the last remark unnecessary. Very well, stand a section by the side of some rancid butter or game that is getting 'high,' or any food with a strong flavour—cheese for example—and note the results. As a further precaution, I stack my boxes in a dry place; the only available one is in a recess beside the fireplace in a bedroom. The room seldom or never has a fire in it, but the room underneath has one every day during winter, so that I am secure from damp.

Who of us has not noticed the shop-windows in towns 'steamy' with condensed vapour in winter? We must remember the glass is in this state because it does not absorb moisture; all the other articles in the window, even the woodwork, if unpainted, is absorbing moisture, and thus have a drier surface, while the glass is in a state of saturation. Few things absorb more readily than honey. Having absorbed to its utmost capacity, and, as I have explained, the sealing being thin, it gives way under the strain put upon it, commences to 'bleed,' and for sale purposes is spoilt as comb honey. Sections so exposed should always be hermetically sealed, to merely enclose them in cardboard boxes is not sufficient. Woodley's cases are far preferable, or each should be glazed and enclosed in stout 'glazed' paper, as I have described in previous *Journals*. If so protected they keep well for an ordinary period, sufficient to dispose of them; and persons with slow sale should be careful not to expose too many at one time, but keep their reserve stored in boxes. Some of our brethren with brains fertile in inventive genius have been giving their thoughts in the direction of cases for hermetically sealing sections, with results which we shall see presently. So far as to prevention. Now as to cure. Alas! I know no remedy; to advise you to 'brush them over with a coat of melted wax' would be to tempt you to a trial of your patience that I should not care to be responsible for the results. Were I the unhappy possessor of a quantity that were so spoilt in appearance as to be unsaleable for sections, I should try uncapping and extracting, and save the combs in the sections to be refilled next season. If that is not practicable, I would melt them down at a *very low temperature*, allow the wax to cool, and skim it off the top and sell as extracted. Our Canadian friends had to treat many so last year at the Colonial.

As to cure, I fear the case is hopeless; because if I knew how properly to seal sections that have badly 'bled,' so that the sealing could not be detected by the uninitiated from 'bees' work,' I would cross the Pond at once, start a honey-factory without the aid of bees, win friend Root's 1000 dollars, and cease to be—

AMATEUR EXPERT.

USEFUL HINTS.

WEATHER.—Occasional showers, a good deal of fog, frosty nights, and sunless days, are about what Englishmen expect to find in the weather reports for the month of November—the wretched, miserable month, the month of suicides, of depression mental and physical—is once more inscribed on the 'hoary register of Time.' Launched well into December, with Christmas and New Year's Day close upon us—the cheery times of 'cards,' of good wishes for a happy future for our friends—let us rejoice in the hope, which ever springs eternal in the breast of man, that better times are in store for all, yea, even for the sorely depressed and suffering agricultural community, in the midst of which our pursuit as bee-keepers has chiefly cast our lot. Even honest Hodge, with his half-dozen hives, cow, couple of pigs, few head of fowls, and two acres of land in prospect, and in which we hope soon to see him in possession, may cheerfully look to the future. Would that he could 'read, mark, learn and inwardly digest' a most excellent article on this and kindred subjects in the November number of the *National Review*, entitled 'The Decay of British Agriculture,' by W. J. Harris,—an article which we strongly recommend to the careful study and deep thought of all our readers.

WINTER FLIGHTS of our bees on bright days should be encouraged by every means in our power, as nothing conduces more to the health of colonies than a good cleansing flight. And what are these means? Removal of hive-covers to allow the sun's rays to fall directly upon the quilts during hours of sunshine; substitution of dry and warm quilts for damp cold ones; a southern aspect for the hives; and, lastly, *pace* our old friend Mr. Grimshaw (*vide* his letter 1374), hive frames ranged on the right-angled cold system, admitting 'the

direct rays of light'—and sunshine—'to strike the brood combs,' and by increased temperature to entice the bees forth. We deprecate very warm interiors with very cold exteriors, which must create evils patent to all. In regard to currents of air chilling brood and bees the latter will provide against this by arranging the cluster according to circumstances. This by the way, as we have no intention of rearguing the *vexata quæstio* of parallel *v.* right-angled frames. In addition to the authorities quoted by our friend we should be greatly edified by the views on this subject of such veterans in the science as Messrs. Neighbour, Carr, W. B. Carr, Hooker, Scott, Raitt, and others who have a life-long experience, if only they would give it in the columns of our *Journal* for the benefit of all. On *our* side we claim all the foremost of our transatlantic brethren—all the most prominent of our European fraternity—and, above all, we claim the results of our system in the hands of such men as 'our' Mr. Cowan, Mr. W. B. Carr, and American apiarists, in the enormous yields of honey after safe wintering produced thereby. As regards the skep argument, we attach to it but little weight, but our own experience is, that as a rule the combs are built from back to front whenever the skep-base is placed perfectly horizontal by spirit-level; and afterwards, if the back is raised one inch, the combs are *always* so built, *cæteris paribus*, for bees as well as other creatures whilst dwellers on this sublunary sphere must build as gravitation compels. Now the skep in these enlightened days is *par excellence* the hive of the cottager—the uneducated—and how many of those skeps upon which Mr. Godfrey and others report were horizontally placed when the swarms were installed in them? Certainly we should imagine not one in a hundred! If one side of a hive is slightly raised, however slightly, gravitation compels the bees to build their combs cross-wise. Hence we cannot assign much importance to the skep argument. But we have digressed too far, and we trust that some of those able friends to whom we have already referred will give us the benefit of their experience on this important subject.

Queens by Post.—The 'dull season' of the year offers a favourable opportunity of discussing subjects, for which, although of interest and importance, no time can be spared in the 'lively season.' One of these, we think, is the transmission of queens by post. Mr. Simmins, in his new book entitled *A Modern Bee-Farm* —which is just out of the publisher's hands and which appears a thoroughly practical and most useful addition to our bee lore—has a few remarks on this subject. On page 144, under the heading of 'Packing Queens,' he says: 'Queens may now be sent by post just as safely as an ordinary letter, and Benton's cage has rendered the system absolutely perfect, though as yet through some short-sightedness or prejudice on the part of the postal authorities many foreign queens have been returned to the senders. Mr. Benton then overcame that difficulty by registering the packages, but now again some one at the General Post Office, more officious than wise, has seen fit to send back registered packages forwarded to myself. They now, therefore, are sent over by parcel post, but by what process of reasoning they are allowed to pass in that manner and not by letter post it is difficult to understand.' Now amongst the 'forbidden articles' for transmission by parcel post are 'live animals,' under which head bees are undoubtedly included, and we ourselves have met with refusal when endeavouring to pass them. This regulation applies to the 'Inland Parcel Post,' but we have no doubt that it is applicable also, in even a stronger sense, to the 'Foreign and Colonial Parcel Post.' If, therefore, post-office officials act up to their rules, queen-bees and their necessary attendants are altogether excluded from transmission. There are so many bee-keepers who would benefit by the removal of this restriction that we think the committee of our Association should make a strenuous effort to get it cancelled. We find from a paragraph in the *American Bee Journal* (vol. xxiii., p. 403), that 'At the National Bee-keepers' Convention, held at Chicago in October 1879, Professor Cook was appointed to wait on the Postmaster-General and endeavour to get the ruling reversed which had excluded queen-bees from the mails. He went to Washington and having obtained the aid of the Hon. Edwin Willits, M.C., in presenting the matter to the Post Office Department, the bees were ordered to be admitted to the mails with "double-wire screens," &c. For the past six years, therefore, the United States mails have been freely used for the transmission of "queen-bees and their necessary attendants." This privilege has been alike valuable to the breeders and purchasers of "queen-bees for the improvement of stock."' In Canada also the same permission is granted. In a communication to the postal authorities of the United States Mr. Cuthbertson, of the Toronto Post Office, writes: 'I have to inform you that this Department does not object to the bringing of queen-bees into Canada by mail, provided they are put up in such a way as to guard against their causing any inconvenience or damage in the handling of the mail.' So important an industry is apiculture now in the United Kingdom that the queen traffic if stimulated by permission to pass through the letter post would soon assume much larger proportions than it at present enjoys and producers and purchasers would be greatly benefited thereby. If our influence were used with the postal authorities and the Postmaster-General were induced to receive an influential deputation on the subject, we can hardly suppose that a denial would be given, unless, indeed, our rulers are contented that the stigma should remain of Great Britain and Ireland remaining so far behind her colonies and other progressive nations. Now that we are patronised by royalty surely this is not asking a boon which cannot be granted! Let us then put our shoulders to the wheel and endeavour to obtain the removal of the reproach from the bee-keeping fraternity of these realms.

Work in Apiary for this month, and indeed for all the winter months, amongst *the bees* should be *nil*. *Perfect rest*, absolute abstention from interference, even so much as a jar or a shake, should be our rule. If necessary to change damp quilts or to place candy upon the frames it must be done absolutely, as far as practicable, without disturbance. Every jar or shake, even a rough or careless removal of the hive-roof or cover, raises the temperature of the hive by irritating and arousing the half-sleeping bees and causing them to foul their hives, while at the same time the internal moisture caused by such disturbance condenses and renders the whole interior of the hive damp and unhealthy. Therefore we say 'Leave the bees severely alone.' The only interference admissible is clearing the entrances of dead bees, *débris* and snow, and carefully and gently brushing off snow from the hives and their surroundings. But every active apiarist will find plenty of other work ready to his hand in preparing for the next campaign—work which has often been specified before and which we need not recapitulate—and, shall we add, in sharing and enjoying his Christmas rest (when it comes) together with his bees.

Solutions of Tomtits' Problem.—While thanking our Editor for his courtesy in admitting our junior readers to compete for prizes by solving our problem we must ask permission to trespass a little further on his space in order to give a list of competitors who were successful with their poetical solutions. The prizes—for we now propose to give three—have been adjudicated as follows:—

Eric Lewis, } Equal first prize of a
S. P. Kirkby, Beeston, Notts, } frame-hive each.

Darcy Grimshaw, Horsforth, Leeds (third in merit), a modern feeder.

Although Mr. Lewis is beyond the age specified we have

great pleasure in offering him a hive, if he will do us the honour to accept it for his most excellent solution. Will he oblige us by forwarding his address? We shall also be glad to learn what 'feeder' Mr. Darcy Grimshaw prefers. Correct answers have also been received from Ellen Cobb, A. Harington, Frank Olyott, G. W. Wells. The prize poems are as follows:—

A practical answer our Editor seeks
To a problem on tomtits and bees in last week's:—
The idea of 'a modern frame-hive' makes me keen
To write for the prize—though no longer sixteen;
And if only I offer the proper solution,
Perhaps you may judge this a fair contribution.

Now if six little rascally tomtits assail
Six poor little bees on the head and the tail,
And peck them so fiercely—and that on the sly—
That, with none of their mates to defend them close by,
They are all little corpses in six minutes short,
Being swallowed, no doubt, to wind up the sport;
Then five score of avengers arrive on the scene
To punish all foes of their hive and their queen,
How many tomtits would be needed to slay
In but fifty minutes this later array?

In the first case 'tis plain that in twice minutes three
Each tomtit has tackled his own little bee,
And therefore if two could set upon one
In half the time only the work would be done,
And so, do you see, a little proportion
Brings out the result—if stated with caution:
For six bees in six minutes together conspire,
After fighting their best, in one breath to expire;
So one hundred in fifty is double the pace
Of the foul execution—needing, I guess,
Just double the tits: so—in logic to delve—
'Ceteris paribus' there will be twelve.

But before I conclude, I am not unaware,
That a pitfall may lurk 'neath the surface so fair:
For supposing that while all the others look on
One bee and one tomtit do battle alone,
And the tit by the dexterous use of his beak
In one minute lays low his antagonist weak,
And each couple in turn to th' arena descends
Till the sixth bee lies dead when the sixth minute ends;

Then, I reckon, one hundred in minutes the same
Will take one hundred tomtits to finish the game;
Again, if we double the pace as before
'Twill need of the tomtits just ten times a score;—
(But methinks that the bees would scarcely endure
To wait each for his turn in a tragedy sure.)

If my figures are wrong and my logic is vain,
Will 'Usefnl Hints' kindly reply in like strain,
And clear up all doubts for bee-keepers perplexed
By a Latin verse answer—he can!—in your next?

ERIC LEWIS.

As you have offered boys a hive,
To get it, sir, I think I'll strive,
And father's promised, if I win it,
To put for me a swarm within it.

Six tomtits, then, sir, if you please,
Will in six minutes kill six bees;
It follows, then, clear as the sun,
That in one minute they kill one.

In fifty minutes thus they will
Just manage fifty bees to kill;
And in this time, if I've not blundered,
Twelve tomtits, sir, would kill one hundred.

And now I've done my very best,
In faith I'll leave to you the rest.
My age is twelve, and, if I've won it,
Here's my address to put upon it.

SAMUEL P. KIRKBY, *Imperial Park, Beeston, Notts.*

The little bees, within their hive,
All winter snug they lie,
Till Tom Tit comes, and with a tap,
He makes the bees reply.

And one by one snaps he them up,
And, though he takes but few,
He makes a hearty meal of them
(Your answer is not 'two').

I thought it was, but oh, dear me!
How deep I've had to delve
Into my old arithmetic,
And find the answer's 'TWELVE.'

DARCY GRIMSHAW (age 14).

MY BEES.

By Mrs. Reginald Bray,

Author of 'Family Feats,' 'Ten of Them,' 'We Four,' &c.

(*Continued from page* 522.)

Chapter IV.—Supers and Supering.—Swarming.

Well, the winter came and passed away, and spring had come once more. We had fed up well in the autumn, and now commenced spring-feeding with great diligence. We were amply rewarded by seeing the bees hurrying into the hives laden with pollen, a certain sign that young brood had begun.

I could no longer resist putting on my supers. It was very foolish I know, for it was early in March, and you do no good by putting them on too early; you only make the hive cold and give the bees more space than they require.

But a few hot days had made the bees hang out in great numbers, and I was immediately seized with my old panic that they would swarm early. I did not wish for this, and still being slightly nervous at handling bees, I did not feel equal to looking for and cutting out the new queen-cells, if there should be any. So Watson and I got out our super-box, and feeling sure that there was no time to be lost, we put in a small piece of foundation-wax into each section to start them, and with great pride put the case on the hive. On the straw skep, of which we had one remaining, we placed a large glass super, and I watched anxiously day by day to see the bees come up. Of course, the bees did *not* go up for some weeks, and as the weather turned very cold at Easter, we should have done far better to continue feeding, and to have kept the bees warmly covered up.

Happily, however, summer came at last with a burst. The bees crowded up into the sections, and were a daily, I may say hourly, source of joy and delight to me. The work began merrily, and the combs seemed to grow before my eyes.

When, oh, horror! what were the bees about? I expected to see each of my 2-lb. sections filled with those fascinating little combs so beautifully fitted into their little boxes. My bees were running two lengths of comb at right angles to the sections, right through the whole length.

I looked, I shuddered, and I turned away once more rebuked for my folly. It was all my own fault, and it proved a case of 'more haste, less speed.' In the hurry of the evening when we had put the foundation into the sections, we had actually put the pieces across the section, instead of into the slits prepared for them; therefore, instead of training the bee into the way he should go, we had actually started him on the wrong track.

It *was* hard, but there was nothing to be done now, and we had to watch the bees continue building their long slips of combs the whole length of each row of sections. Still, honey the wrong way was better than no honey at all, and being of a sanguine temperament I soon persuaded myself that I rather liked it. It was

such a strange, original way of building the comb. After all, those little super boxes were very common. And all the time the bees grew stronger and stronger. They hung out in clusters outside the hive, and the number of drones convinced me there would soon be a swarm.

I watched eagerly, for I had read in the *Bee Journal* that to leave the hives even for a short time might be to lose a swarm, for the weather was so hot that the bees were simply boiled out of the hives. However, watch as closely as I might, I could not be always there; and it is my belief that those bees *did* swarm, and that they went away and I never saw or heard anything of them. Watson always maintains that they did not, but they suddenly grew much quieter; and the presence of a young queen leads me to believe that I was right, for it is always the old queen who goes forth with the swarm, she having, I suppose, more experience. The young queen remains in the parent hive.

By the end of July our sections were as full as they could be, and I wrote and asked Messrs. Neighbour to send a man down to take the super-box off for me, for the combs being made all the wrong way, I really did not know which way to set to work. Also, the box was so tightly fixed on to the hive by the propolis of the bees that I did not know how to take it off. None of the bee-books that I had gave any information as to this, and it was too large to slip a knife under.

This difficulty the man got over very cleverly. He took a thick piece of string, and drew it slowly right under the super-box, cutting through the propolis so that it could be lifted off quite easily.

He smoked all the bees out of the super, making them run down into the body of the hive. The moment the box was lifted off, the hive was covered with the quilt and shut up, the unfortunate bees being left very angry and disappointed at being robbed of their honey.

The box of honey he carried into a shed at a distance, or we should have been beset by bees from all the hives, for they soon find out honey if it is anywhere within their reach. It was a difficult matter to take the combs out of the sections without breaking it, and most mortified I felt as I looked on, hearing him remark occasionally, 'What a pity such beautiful honey should be spoilt!'

However, it was all done at last, and when I saw nearly forty pounds of honey in large dishes, I cared no longer whether it had been made upside down or the wrong way. I had honey,—real, beautiful honey of my own, and with great pride I set 3*l.* against my expenses of bee-keeping, for it is only fair to charge the house for it at the best price. I sometimes wished the household did not appreciate my honey quite so much: it would pay far better if they did not. For myself, I care very little about eating it; and as I said before, it is very hard to see the beautiful white comb eaten, and to hear the scrunch of the spoon as it cuts into it.

The bees in my straw skep never did much work in the glass super which we had put on, and as the autumn advanced they took what little honey they had put there down into the body of the hive. We wondered why they did not do so well, and eventually drove them and put them into a small bar-frame hive of Messrs. Neighbour. We then found out the reason—the wax-moth had got into the hive. This is a troublesome little moth much to be dreaded in a weak stock, as it lays its eggs in cracks inside the hive, and sometimes on combs which are not covered by bees. When the caterpillar hatches out it eats its way through the wax, pollen, and brood, spinning a silky film as it goes, and spreading destruction. If stocks are strong you need have no fear, as the bees can guard against them. It will be found a very good plan to keep pieces of camphor in the hives, as they would be a great preventative both to the moth and foul brood, of which I shall have more to say later on. The bees have no dislike whatever to the camphor, and you may push lumps of it between the bars without their being affected by it in the smallest degree.

A cousin of mine, finding one of her hives in a very weak state, suspected the presence of wax-moth, so, as the hive was a straw skep, she determined to drive the bees and burn the old hive, in order to get rid of it. She asked me to help her; and as this was the first time I had attempted driving since our scare, I determined to take all possible precautions. She, also, having been severely stung that summer, and her bees being of a very unamiable disposition, was equally careful.

We tucked our veils in with the greatest care, we put on two pairs of gloves each; and though we saw no bees coming out of the entrance, we gave them a thorough good dose of smoke. Having left them for some moments to regale themselves on honey, we turned the hive upside down. It was somewhat absurd, though very annoying, to find nothing in the hive but a few dead bees!

This same cousin had another hive, which she asked me to attend to and feed in the autumn during her absence from home. It was not a very strong stock, and the place was perfectly infested with wasps. I am sure they ate the honey as fast as the bees took it in; indeed, I used to feel quite nervous at going near the hive because of the wasps.

One day when I went down I found the hive in a most disturbed state. The frames were all tumbled about and in the greatest disorder. I thought it looked very much as if 'Humpty-Dumpty had had a great fall.' I went to inquire of the servant left in charge: 'Did she know if anything had happened to the hive?' She thought for a moment, and then said, 'Well, she believed the boy had said something about the pony having got into the garden and knocked the hive over, but he had picked it up again all right.' 'Had he, indeed?' I only hoped that the boy and the pony had got thoroughly well stung. As this was not the only occasion when the pony got into the garden, that hive of bees did not prosper, and they all died off in the winter.

A sister of mine was much more fortunate. It is astonishing the luck that some people have. The following letter, which I had from her, gives a most interesting account of the way in which she was, if I may say so, compelled to start bee-keeping. She had no particular wish to do so, because bee-stings took such an effect upon her that it was scarcely safe for her to keep them:—

'Dear E.—You will be surprised to hear that I am now in the possession of a magnificent hive of bees which have not cost me a penny.

'As you know, I had no intention of keeping them, but yesterday morning a small swarm got under the tiles of the verandah. Duncan [her Scotch butler] and I went up on the roof to endeavour to entice them out. Fortunately I had a hive by me. We spread a sheet on the roof, and placed the hive in readiness, when a cloud appeared in the sky, and a huge swarm of bees, the largest I ever saw in my life, swirled round, frightening us horribly, and, attracted by the white sheet, dashed into the hive. The strange part was that the other swarm joined them, and I have got a hive as full of bees as you could wish.

'There is very little doubt where the swarms have come from. Mr. E.'s house is infested with bees. It is an old-fashioned farm-house, and the whole roof is full of them. There is no possible way of getting them out, and sometimes they cause great annoyance. Last summer his mother-in-law was staying with him, and greatly she enjoyed the beautiful scenery and summer weather.

'"If there is one thing I like," she said, "it is to be able to sleep with one's window wide open, and hear the sound of the birds."

'Yes, that is very delightful! but early next morning she was awoke by another sound—a loud and alarming buzzing in the room. She opened her eyes, and oh,

horror, the room was full of bees! They had swarmed through the open window right into her room. To spring from her bed and rush out of the room was the work of a moment; and she took very good care never to sleep with her window open in that house again.'

I should much like to know whether any of my readers have ever known of such a remarkable instance of two swarms going into the same hive. Possibly the first swarm may have gone off without a queen, as this is sometimes the case. Swarming is, I think, one of the most interesting features of keeping bees.

When the hive has become overcrowded, the bees make preparations for swarming by commencing queen-cells. Sometimes they will start as many as seven or eight. They will have already produced a great number of drones, and when you see many of the latter about you may be quite certain that swarming is not far off.

A good deal depends upon the weather. Sometimes, just as bees are on the point of swarming, the weather becomes cold or wet, in which case the bees will destroy the queen-cells, and often delay the swarming for some weeks. When the swarming fever is on, the bees rush in and out of the hive in an excited state. The whole air seems full of bees. Sometimes they will rise up and go straight away, and you may lose your swarm; but usually they will settle on some bush or tree near. The *old* queen always goes out with the swarm, and she leaves before one of the new queens has emerged. If the bees are not inclined to cluster, it is a very good thing to squirt water over them with a garden syringe so as to resemble rain.

A bee-keeper should always have hives ready to receive he swarms, but do not sprinkle the hive with sugar, beer, or treacle, as is sometimes recommended; it is a great mistake. When bees swarm they are usually extremely good-tempered, as they have filled themselves with honey before leaving the hive.

If the bees have swarmed on the branch of a tree, lay a cloth or sheet underneath it, hold a straw skep underneath bottom upwards, and give a sharp shake to the branch. The bees, who are all clinging to each other, will fall in a mass into the skep. The queen is usually in the centre, but you should always get as many bees as possible, so as to be sure you have her.

After you have hived them, you should stand your skep on the cloth with the edge slightly raised, and the rest of the bees will soon find their way in if the queen is there. If she is not, the whole swarm will soon return to the parent hive.

If you desire to put the bees into a bar-frame hive, you can either shake them in at the top, having first removed two or three of the centre frames which you replace afterwards, or you may lay a board as level as possible from the ground on to the alighting-board (if the hive is a high one on legs), place the other end of the board on a box, flowerpots, or something. Lay a sheet over the board, covering the edge of the board where it rests on the alighting-board. Shake the bees on to the sheet and they will soon run into the hive. If you happen to have any frames of comb, or, better still, brood-comb which you can put into the hive, so much the better, as the bees will cluster on it at once, and attend to the young brood. If you have no comb you will aid the bees very much by filling the frames with foundation comb, which is made from the pure bees-wax, and can be purchased at any dealer in hives. It also acts as a guide to the bees, and the combs are better built than if the bees are left to go their own way.

The parent hive is now left queenless with thousands of young bees taking care of the brood, for all the old bees have left the hive. It is an interesting fact that a young bee when it first emerges is so young and tender that it is not trusted to leave the hive, but it remains as nurse to cherish and feed the young grubs for some days until it is strong enough to fly.

The old queen, as I have stated, has gone off with the swarm, leaving the queen-cells sealed over. After some days, sometimes as many as eight, one of these queen-cells hatches out. Then a very curious thing takes place, the queen rushes upon the other cells and proceeds to tear them to pieces and destroy the other queens. The worker-bees assist her in this murderous wish, unless they are still very much crowded and have determined to send off a second swarm, or, as it is usually called, 'a cast.' In this case they protect the cells and will not allow the queen to destroy them. In her endeavour to do this she sometimes utters a shrill piping sound. Failing in this she evidently becomes too indignant to remain in the hive. She will not brook 'a rival near her throne,' and she rushes off with as many bees as will follow her.

These casts are not worth much, as they consist of few bees, the best plan is to take away the queen and return them to the hive. They can easily be prevented by cutting out all the queen-cells but one, after the swarm has left the hive.

Selected Query.

[4.]—*What is the smallest amount of stores that it is safe to winter bees upon in a frame-hive, and what is the best way to feed in winter bees that are short of food?*

A stock of bees cannot possibly live 'through' the winter, reckoning such winter to extend until the middle of March, having less than 20 lbs. of stores at the end of September, and pay the bee-keeper the next season. It would be quite possible for them to live on 13 lbs., but they would be of little use the following season. The regularity of the temperature in winter makes a vast difference as to the amount eaten. If we could obtain a regular temperature of from 40° to 45° Fahr. not more than 3 lbs. of stores would be consumed from November to February, but if the temperature is constantly varying 10 to 12 lbs. would be eaten in the same time, therefore it is not safe to trust them with less than 20 lbs. Either candy or Porto Rico sugar on top of the frames. In placing Porto Rico sugar on frames, holes must be made through the sheet of paper on which it lays and an enamel quilt used next over the sugar.—W. B. Werster.

The smallest amount of stores I ever wintered a stock upon was 10 lbs. It is not safe to winter on less than 20 lbs. of honey. The best way to feed in winter bees short of food is by candy cake placed on top of frames, made from recipe given in Cowan's *Guide Book*, care being taken not to make it too hard. In the case of large apiaries, there should always be a lot of spare combs of honey on hand to give to any stock that is likely to run short of food.—William McNally, *Glenluce, Scotland.*

From the accurate weighing of a large number of stocks, for a long series of years, I find the average consumption of food per stock from September 30th to April 30th is nine-tenths of an ounce per day, or about 12 lbs. But some weak stocks caused me nearly half as much again to keep up the necessary heat of the hive, so I always make my stocks up to contain about 16 lbs. of food at the end of September. If the bees have been so disgracefully neglected as to require feeding in winter, the best way is to give them cakes of candy placed on the top of the bars.—William Carr, *Newton Heath Apiary.*

From 12 to 15 lbs. of sealed stores, in a box, placed over feed-hole; or, if you have any sections, they may be placed over feed-hole in same manner.—G. J. Buller.

(1.) It is not advisable to winter an average colony upon less than 20 lbs. nett weight. (2.) By preference, combs of sealed stores laid close on frames—if none on hand then good candy.—Samuel Simmins.

From the 1st of October to end of January a colony kept quiet needs about 8 lbs. of food. From that time, until the early honey-flow, week by week, the consumption of stores increases, and the more young and vigorous your queen the greater a colony's need. Hence no good colony should be put up for winter, feeling a certainty for its future, with less than 30 lbs., or stores at command. Such a colony will go far ahead of one which is wintered upon a *bare sufficiency*, and that has to be upset ever and anon in giving further supplies during the early spring. We now have driven bees upon frame-feeders (if successful, to be illustrated and described later on) without any other stores than candy and one frame of empty comb in the centre; but as this is experiment up to date, we advise candy, in shallow 1-lb. boxes, to be laid over hole in calico-sheet on top of frames, in number two, four, or six, as required. These covered very snugly above. — J. H. Howard, *Model Apiary, Holme, Peterborough.*

Twenty lbs. of honey for an average colony is the smallest quantity of stores it is safe to depend on to carry them through to end of February or March, then if short I would give candy containing a small proportion of pea-flour. If bees run short of food during the winter I should give candy over cluster of bees.—W. Woodley.

(1.) For a colony covering well eight standard frames 20 lbs. of sealed stores will suffice for four months' consumption—say from October to February. (2.) Place outside the brood-nest, close beside the cluster of bees, a comb of sealed honey; or lay upon the frames, *around* the cluster and under the quilts, candy, Good's candy, or barley sugar.—George Raynor.

In an ordinary winter, 20 lbs. of good sealed honey, with winter passage through each comb. Feed with *best* sugar candy under the quilt. This can be obtained at 3¾*d.* per lb. if 28 lbs. are bought at a time.—John M. Hooker.

ASSOCIATIONS.

ESSEX BEE-KEEPERS' ASSOCIATION.

The autumn county show held annually by this Association in the Corn Exchange, Chelmsford, in connexion with the Chrysanthemum Show of the Chelmsford Horticultural Society, brought together the largest number of exhibits yet staged in the county. There were in all twenty-three exhibitors, from various parts of the county, and fifty-eight entries staged, the honey shown weighing about four hundredweight. The quality on the whole may be pronounced as very good, sufficiently so, at any rate, to justify the Rev. G. Raynor, of Hazeleigh, Essex, who kindly acted as judge with his usual ability, in awarding the silver medal and certificate of the B.B.K.A. The former went to Mr. J. Debnam, expert of the Association, for the best lot of comb honey shown, and the latter to J. Runcieman, Widford, a cottager (who took the silver medal last year), for the best twelve jars of run honey in the show. The Association's bronze medal was awarded to Mr. Debnam for run honey at the summer show, held June 7, 8, in connexion with the Essex Agricultural Society's Exhibition. The heartburning occasioned in many counties by the expert sweeping off all the prizes, or being excluded from showing—either course equally unjust—has been entirely averted in Essex by having separate classes for dealers in honey and amateurs, no one who purchases honey for resale being allowed to compete in the latter. The result is a keen competition among members. At this show seven amateurs entered twelve 1-lb. sections and eleven twelve 1-lb. jars. Another advantage of this arrangement is that when cottagers become skilled bee-keepers, as some few do, the higher prizes offered in the amateurs' classes induce them to enter in these, rather than among the cottagers, thus leaving the average cottager a better chance in the cottagers' classes.

The class open to all members for the best single section is made a speciality in Essex, and that not at the county shows only. It was started last year with the object of encouraging the production of perfect sections, even among the smallest bee-keepers, and now a certificate and 2*s.* 6*d.* are offered to the promoters of any local horticultural or village show who will enter the prize on their schedule. There were thirteen entries in this class, and the winning section went near to taking the silver medal. Big supers, though they ought not to be encouraged, as unsaleable, will always, we suppose, take take prizes if well filled, as was that shown by Mr. Debnam, which contained about 29 lbs. of honey. A smaller one of Mr. French's, which took second prize, was as pretty a bit of work as one could wish to see in a bell glass. Seven showed beeswax, two more who had entered carrying off their exhibits when they saw what was staged against them. If many acted on this principle it would soon lead to exhibitors who bring their own things being allowed no further than the door.

The class for hive made by a cottager brought a bar-frame of excellent build and design, good enough for anybody's use; better, in fact, than the dealers can afford to sell. The maker is a retired coachman, who turned his hand to this sort of work for the first time last autumn, and has kept his eyes open ever since. In this class it is a good plan to invite suggestions from the judge, and write them on the hives. It interests the public, and is a material help to an exhibitor desirous of improving.

The following is the prize list:—

Dealers.—Class 1, twelve 1-lb. sections: 1 and B.B.K.A. silver medal, W. Debnam, Chelmsford; 2, Ed. Durrant, Chelmsford. Class 2, twelve 1-lb. jars: 1, W. Debnam; 2, W. J. Braddy, Kelvedon.

Amateurs.—Class 3, twelve 1-lb. sections: 1, P. Hills, Great Baddow; 2, Miss Chalk, Springfield Lyons; 3, Mrs. Cobb, Great Waltham; h.c., J. Runcieman, Widford; C. N. Brooks, Mistley. Class 4, twelve 1-lb. jars: 1 and B.B.K.A. certificate, J. Runcieman; 2, W. Dance, Gosfield; 3, P. Hills; c., P. French, Boreham; Mrs. Cobb; R. R. Royds, Kelvedon Hatch.

Open to all Members.—Class 5, single section: 1 and E.B.K.A. certificate: P. Hills; equal 2, J. Winter, Kelvedon Hatch, J. Runcieman; h.c., W. Debnam, S. J. Braddy. Class 6, super: 1, W. Debnam; 2, P. French; 3, Mrs. Cobb. Class 7, Beeswax: 1, D. Dudley, Great Totham; 2, W. Debnam; 3, Mrs. Thomas Jackson, Tillingham.

Cottagers, Open.—Class 8, single section: 1 and E.B.K.A. certificate, J. Winter; h.c., A. Mayell, Bradwell. Class 9, twelve 1-lb. sections: 1, J. Jillings, Broomfield; 2, J. Winter. Class 10, twelve 1-lb. jars: 1, J. Winter; 2, A. Mayell. Class 11, super: 1, J. Newnan, Little Baddow; 2, A. Mayell. Class 12, amateur-made hive: 1, W. Barltropp, Woodham Mortimer.

HORSFORTH DISTRICT B.K.A.

The members of the above Association met together on the 26th ult. at the residence of the hon. sec., N. F. Burniston, Esq., Throstle Nest, Horsforth. After an excellent dinner, the balance-sheet was read by the treasurer, and the usual business was proceeded with. The same officers were re-elected, new members were enrolled, and the Association looks forward hopefully to a period of great mutual usefulness in the coming year. A vote of thanks to Mrs. Burniston for her very practical assistance was proposed by Mr. R. A. H. Grimshaw, after which the meeting literally 'Closed in harmony.'

THE LINCOLNSHIRE HONEY FAIR.

This fair was held at Grantham on Saturday, December 3rd, being opened by the Mayor (Mr. Alderman Bell).

Compared with last year the total amount of honey was not so large, but the quality was exeellent. At the same time a greater number of smaller producers were represented, instead of, as hitherto, the bulk of the honey being brought by one or two persons. Prices ruled as follows :—Honey, 8*d.* to 10*d.* per lb.; and wax, of which there was a short supply, 1*s.* 8*d.* to 2*s.* per lb. The majority of the honey exhibited was the produce of clover and beans, but a choice lot from the Duke of Rutland's seat at Belvoir was evidently the product of a variety of flowers. There was a demand for extracted honey, section or comb honey being in little request.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. Huckle, *Kings Langley, Herts (see 2nd page of Advertisements).*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

MEMS. BY 'WOODLEIGH.'

[1378.] I was pleased to see Mr. Simmins' letter (1361) in a recent issue, *re* the 'price of honey,' and trust other large producers will be induced to give us their ideas on the rapid decline—or, ought I to say, the 'down-grade'—tendency of the market-price of comb-honey. No doubt, as Mr. S. avers, the production has exeeeded the demand in many parts of the country, and conseqnently the price has ruled low, and I opine the average price for the year will be between Mr. Godfrey's 9*d.* and Mr. Simmins' 7½*d.*

Mr. S. pertinently observes that one cause of the low price can be traced to the usual custom of bee-keepers disposing of all their stock as soon as the honey season is over, and consequently the market is glutted, prices go down with a rush, and it is a long time before there is a turn in the price or dealers are disposed to give more money than for previous parcels.

Others cast the blame on the Honey Company, but I do not consider it fair to do so. If the H. C. gives 6*s.* or 6*s.* 6*d.* per dozen for sections, they take all risk of those sections becoming crystallised, and consequently unsaleable, fit only for mead or 'mella;' also the expense of glazing or putting in cardboard boxes, or the new fancy tin-cases, thus enhancing the price of the 6*s.* 6*d.* sections to 8*s.*, and with a small commission and the subsequent carriage to the retailer the sections cannot cost him less than 9*s.* per dozen. Now if those bee-keepers who grumble about the price given by the Honey Company, or other large dealers who supply the retailers, will set about finding a market for their honey, put it up in a saleable form, and it is of good colonr and flavour, I have no doubt he, or they, will obtain the coveted price of 9*s.* per dozen wholesale, and, of eourse, 11*s.* or 12*s.* a dozen retail, for their sections.

I should be pleased to see quotations given, say once a-month, in *B. B. J.* as to the market price of both comb and extracted honey, it would be very nseful to bee-keepers having a stock on hand, and it would come in very opportunely with Mr. Bellairs' extract from Board of Trade Returns of Foreign Honey he so kindly procures and inserts periodically.

No doubt with the prevalent low prices of comb or section-honey that extracted pays the producer best, and probably many bee-keepers will go in for extracted honey in succeeding seasons. There are some rather heavy items of expense connected with the production of comb-honey in comparison with extracted; take, for instance, the following for, say, 1000 sections:—first, cost home will be 23*s.*, and if full sheets of foundation are used for the sections of eight sheets to the pound you will want 10½ lbs. at, say, 2*s.* 9*d.* per lb., costing, with carriage home, at least 30*s.* Here we have an expense of 53*s.* on every thousand sections that are produced. But the producer of extracted honey is spared that expense, as his combs serve over and over again, and the cappings he takes off nearly pay the expense of the time while extracting; and when we consider that the produce of extracted honey must be greater than comb by at least one third, we see that 1000 lbs. of extracted at 6*d.* per lb. is 25*l.*, and with the one-third added 33*l.* 5*s.*; while the 1000 lbs. of comb in 1000 sections at 7½*d.* (a fair price unglazed) would amount to 31*l.* 5*s.*, deduct the above items of expense for sections and foundation, viz., 2*l.* 13*s.*, and we have only 28*l.* 12*s.*, or a balance in favour of the extracted of 4*l.* 13*s.* on every 1000 lbs. produced in an apiary. Then another great consideration in favour of extracted is that it is proof against the 'jars' of the railway porter while in transit.

In conclusion, may I ask a question?—'Do bees that are fed with phenolated syrup know strange bees from other hives that are being fed with the same kind of food?' as I have never had occasion to use phenol in food—in fact, not at all, exeept in a crude state, as I have stated before, for taking off sections. I have not been able to verify above query.—Woodleigh.

[Considerable attention has been given to the subject of quotations of honey and wax. It formed a topic for discussion at the last quarterly meeting of county representatives. The difficulties arise through the many grades of honey which are produced from the flora of this country. A general quotation would in many instances be misleading. Has any bee-keeper the necessary experience to reply to our correspondent's last query? —Ed.]

DISHONOURABLE EXPERTS AND OTHER OFFICIALS.

[1379.] Although agreeing in the main with your remarks respecting experts and local secretaries as to the disposal of honey for others, I yet feel very strongly that when these officials and certified experts undertake the sale for or buy honey from us, we ought to consider them as 'honourable men,' and that there is no risk of being treated as though some of the 'Long Firm' had us in their clutches. I hope it will be considered a duty by the parent or any local Association to dismiss at once and cancel the certificates of those who are proved wanting in integrity.

As an illustration I may state that one of these gentlemen called on me some three months ago, received payment of me for some of his 'goods,' looked at some surplus sections, and agreed to take about 50 lbs. at 7*d.* per lb., and send a cheque in payment. These were packed in a great hurry for his convenience and taken away. The packing-cases were returned, but no cheque, and in reply to *three* applications no answer whatever or notice of any kind has been returned.

Another time I was informed that prices were from 5*d.* to 9*d.* according to quality, and on sending over 50 lbs. was told that 4*d.* per lb. only could be given for the perfect sections, and, as was said, some fourteen or fifteen were smashed, only about 1*s.* or 1*s.* 6*d.* could be given for them, so I had to accept about 14*s.* for the lot.

Yet another leading 'expert' will never be engaged by a Committee here on account of alleged 'hocussing' by him. I can add to this list from unimpeachable testimony.

These cases should warn the unwary, and I hope the

parent Society will soon cleanse the Augean stable, or we shall begin to look upon our organizations as existing only for practice in manipulation for the purpose of extracting our honey indeed, and leaving our purses as empty as the honeyless cells.—A SHORN LAMB.

A TRIP TO THE HEATHER WITH THE BEES.

[1380.] 'Are you going to take your bees to the moors next week? Have you got any one to go with you?' are the questions asked by several of my acquaintances when the first of August comes round; but I have to reply I am going to take two friends that arranged to go with me months ago, and three on the bee-waggon are as many as can be conveniently seated. Every night for a week I have been busy fitting the hives up for the journey. Straw hives are secured on to the bottom boards by strong wire, and three screws are put through the cane hoop at the bottom and screwed into the wood. The crates for the frame-hives have all been examined, several sections are well advanced with comb since the honey harvest here last month, and a few are full: these I take out and put empty ones in their place. The hives are all screwed on to the bottom boards, each hive is numbered, and particulars of each entered into a book.

The day of removal arrives, and the weather as propitious as ever. Nothing to do to-day but see that one of the colliery horses is secured and kept in the stable with plenty to eat. Seven p.m. and we commence to close the bees in with wire gauze, and take off ventilating covers, and commence loading the bee-waggon,—a waggon made for the purpose with two decks. Frame-hives are put below and straw hives above, all other requisite appliances put into the box, which is also the seat of the waggon. Then after partaking of a good supper we get our horse yoked and start our journey twenty miles west. The night is very misty.

After getting a short distance out of the village we find a friend waiting for us with his hive at a lane end. We soon secure the hive into the waggon, and, knowing his ardent desire to go with us, I plan a seat for him; and then we get under way again. We soon come to a heavy bank, and we all get off. The horse rushes up, for he has no patience. We have several times to dismount, for it is a climb upward for twelve miles. Nothing eventful happens during the darkness. We occasionally meet companies of miners going to work, and in passing through colliery E— S— my friends are surprised to see in so many of the miners' cottages the people are all astir, and it is now one o'clock in the morning; but such is the miner's calling: he is wanted at all times of the night. At two o'clock it is very dark and the mist is very dense. The road being black I have to hold the lantern as far down as I can, and can just discern the roadside, and the road here is very uneven. We all sit close together with all our wraps on wishing for daybreak.

On arrival at H— H— there are signs of daybreak, and we put the lantern out, and by the time we arrive at B— we can hail with joy 'the smiling morn.' We have now reached the highest point of our journey, 868 feet above the sea level. The place we come from is ten miles inland, and only 108 feet above the sea level. Our progress has been slow—it is now 3.30 a.m.—but it has been all up-hill. We are now nearing the Derwent Valley. We pass down a steep hill shaded by trees, and then we strike the valley. The magnificent view that presents itself on this beautiful morning can never be eradicated from my memory. When we got a little further on, clear of the embankment on the right, I was transfixed for awhile in mute amazement. While I beheld the sublime scenery of that deep, wide valley, to the southward the mist had lifted and had the appearance of a long white cloud as white as snow; west and north-west was one vast, glorious panorama beyond my pen to describe.

We now come to the brow of B— H—, a hill nearly a mile long; we adjust the shoe on to one of the hind-wheels and walk down. A short distance in front is a flat cart making slow progress, for the men cannot 'break' the wheels; we overtake them and find they are bee-men from U— F—. There are nearly twenty hives on the cart, small in size, not more than twelve inches diameter and nine inches high inside. This size of hive has been used in their neighbourhood for generations; they looked in the cart really splendid. These men make their own skeps of rye-straw, and every lap of cane seemed to be at a measured distance. Arriving at the bottom of the valley, we halt close to the bridge crossing the river. In the first place we put the poke of corn to the horse's head, for there are still six miles to go, and some hard hills to climb. We all now seem ready for some refreshment, and as each of us opens our bundles we find there is no lack of choice. We have not halted long until other two waggons of bees draw up, and then begins a general inspection.

The scenery from the bridge and the music of the waters make my friends loth to obey the order to move on; but the horse has finished feeding and we are behind time, so there is no alternative but to move on. Before leaving, a note is put under a hotel door, informing them that we shall need a good dinner on returning. It is now a continual climb for three miles, but the scenery is charming. On our right the hills are clad to their crest with stately fir-trees, and in the open spaces we see the rabbits very numerous, taking their morning gambols. We soon come to a forest, where we descend a deep ravine, which almost shuts out the light of day. We find it easier getting down than getting out, for the hill is very steep. We allow our horse time to recover from the effects of the hill, and then we soon arrive at a farmhouse and a church which has two-thirds of its wall covered with ivy, and there is not another house to be seen neither right or left; but we find on inquiry that there is a scattered village over the brow of the hill on the right. Another half-hour brings us to the summit of our climb, and we have the river in view again, with the blue hills of heather right before us.

The view before us now is quite a change, more of a wild character, and although not so sublime, yet it gives to us a feeling of freedom; and, together with the light refreshing breeze from the hills, we are in the best of spirits. Another three-quarters of an hour bring us to our destination, a farmhouse by the roadside. We enter a grass field, and drive across to where we have our stands. We first take our horse out and stable him, and then all hands are busy unloading and adjusting the hives on the stands as fast as we can. The sun is making us feel warm, and the bees are telling us it is high time they had their liberty. In half-an-hour we have them ready for removing the gauzes. I put on the bee-dress, and my friends step back a few paces; but they are not very cross when they are let out, except one that is not on a wire-bottom board. This one I let out last, and as soon as the gauze is off they come out like a shot from a gun, and make all fly. A dog standing watching us is sent howling up the field, and some sheep over the wall are also stung.

The bees are soon out in a cluster, and all is quiet. We are now glad to get to the farmhouse and find the good lady has our breakfast waiting for us, consisting of tea, bread, boiled eggs, and a large jug of milk. After breakfast I take the opportunity of having a short nap, but my friends are determined not to waste time with sleep. The sky is clear, and the sun is shining in his strength. The sportsmen are also cracking away at the grouse, for it is the 12th of August.

After my nap is over I get up to finish what we left undone in our haste to the hives, and I see my friends returning. They quite astonish me when they tell me the distance they have been. We soon have all put

right with the hives, and then make down to the burn, and the day being so warm we strip and enjoy a refreshing bathe. We stroll back again, and have a look at the stands of bees that are planted at various distances along the wall in line with ours, and also up the south side of the field. The most of them are straw hives and a few wood boxes.

I am sure, Mr. Editor, the sight would interest you. On one of the stands the skeps are fixed on wood boxes four or five inches deep, and the entrance changed to the bottom of the box. They nearly all have a large sod on the top as a protection from the rain, which does not look at all respectable. There are well-nigh a hundred in this field. Some of the owners have gone in for cheapness with a vengeance; the bottom boards especially are very unsound. These cheap Jacks got a caution a few years ago. One of them in loading his cart to take his bees home broke one of the bottom boards, and the bees got out, stung the horse, and sent him galloping away up the bank; and on nearing a house with the door open it made a sharp turn to get in, and upset the cart, and all the hives went rolling down the hill. It finished all the hives, and many of the natives got a taste of honey.

After decorating our waggon with blooming heather we start for home. Arriving at the hotel at the bridge we leave our horse to the ostler; all our belongings are put into the box and locked in out of sight. We find the landlady has got the note ordering the dinner, which is nearly ready. There is just time for a walk around the garden, and then we sit down to a substantial dinner, which does us all a deal of good. After dinner I am inclined to rest at ease, but my friends want to see S— Spa Pleasure Grounds, and, being in no hurry to get home, we set off. A short walk brings us to the Grounds; a flat opening at the bottom of the valley, surrounded with trees in all directions. We stroll about through the wood, and along by the river side, until we are satisfied. After merely feeling the taste of the spa water—for we don't think we are in need of such medicine—we return and commence our journey home, feeling rather disappointed in having to leave this pleasant valley.

On reaching L— we fall in with some friends who have been on the same errand as ourselves. They are going to make a halt and feed their horse, and, for the sake of their company, and to hear how their bees have done at home, we halt as well, and rest for three-quarters of an hour, and then move on homewards. The scenery for the rest of our journey does not interest us much. There are so many collieries and coke-ovens that we see every day, but on arriving at K— we resolve to rest again and have some tea. We have felt the day to be such a happy release from the monotony of business life that we are in no hurry to be home. However, this has to be our last stop, and then we jog on home again. On nearing home I am startled by a movement behind me, and, turning round, am just in time to steady one of my friends from falling off the waggon. He has despised the demands of sleep, but now he is compelled to put himself into a secure position, and give way to sleep for ten minutes. We arrive at home at seven p.m. A friend is on the look-out for us, and takes charge of the conveyance. I leave all to him, and make no delay in getting off to bed, and have eleven hours of unconsciousness.—W. J.

THE NEW SECTIONS.

[1380.] In answer to Mr. Fryer (1365) as a bee-keeper of seventeen years my experience of working sections without separators has taught me to avoid their omission, as in every case they have been omitted more or less bulged combs have been the result. I consider the small additional cost of separators well repaid with either 1½-inch or 2-inch sections. My experience is limited to two crates of Lee's new sections, consisting of 2-inch and 1½-inch; these have four bee-ways. Although the season's honey-flow was very slow, these sections were filled more perfectly than any I remember having since sections came into the market. The 1½-inch were the most beautiful I have ever seen, filled out perfectly level, without a single indentation. I much question, however, whether the latter will pay so well as the 2-inch when filled, as I do not think their market value will compensate for the additional outlay.—Frank Palmer, *Sunning Hill, Berks.*

SELECTED QUERY, No 2.

[1381.] The replies to this query if nothing else is amusing reading. Did it occur to any of the eight gentlemen who replied to this query that for all practical purposes a sheet of foundation is superior to a comb? Well, it is a fact. With one exception, and that is, for driven bees, and then stored combs are best.

This spare comb business I regard as the curse of the bar-frame system, as it is one of the surest ways of spreading foul brood. There is nothing like foundation and the wax-kettle for keeping an apiary in health and vigour.

Those who recommend starters should study the subject properly before they turn teachers. This wireing business I regard as one of the modern humbugs and one of the aids to adulteration, as with good foundation it is not needed and is waste.—James Saddler, 35 *East High Street, Forfar.*

FOUL BROOD ONCE AGAIN.

[1382.] I suppose Mr. Ward has given me up as incurable, as he says it is useless to argue with a man who disbelieves everything, except that the disease is caused by the use of the bar-frame hive, and that it can be cured by simply taking away the combs.

To a certain extent, I say it is caused by the use of the bar-frame hive, for before you embark into the use of the bar-frame hive you have either seen some one manipulate one, or you have had a copy of some modern bee book lent you, or perhaps the *Bee Journal;* and you soon find out that there are some wonderful foreign bees, and if you are an enthusiast, you must try one, like your humble servant. I will leave you to read what the 'Platelayer' says in a previous number as to what follows. But if you are living in a district in which foul brood is not known, and, like the 'Platelayer,' you stick to your black bees, then the bar-frame hive will never give you foul brood. There is not the least doubt in my mind, but that these pretty foreigners or their belongings brought the dire pest into this neighbourhood.

I am very sorry that I cannot enlighten the 'Yorkshireman' as to the why and wherefore of straw skeps missing the disease and frame-hives having it, but it is a fact here. I drove some bees out of straw skeps for a cottager, living a short distance from me, last August. One of the hives was so old and rotten, and the combs were so black when I came to turn it up that I made sure of finding the disease there; but when I came to pull the combs asunder I found there was no trace of disease.

I, like the 'Rector of Ore,' have been the means of several old bee-keepers adopting the frame-hive, and discarding the straw skep, with the result that they have had but very little honey, but plenty of foul brood, which is very annoying, particularly when their neighbour, who sticks to his straw skeps, gets his swarms and casts, and an occasional cap, from some stocks, and then to finish up, puts them over the brimstone tub. (I don't admire the last proceeding.) It makes an old cottager think

there is something wrong with the new-fangled system. In reply to 'Yorkshireman' about selling bees having foul brood, I said to the bee-keeper in question, 'You will never attempt to sell your bees, knowing that you have got foul brood;' but he says, 'If they don't ask me I shall not tell them,' so that I would advise every one buying bees to ask the question, Have you got foul brood?

I am like Mr. Ward, I say facts are stronger than opinions, and when he quotes me correctly and sticks to facts, I will attempt to answer him farther.

'Useful Hints' thinks the foul disease is more likely to travel in the wake of the modern expert and the straw skep than the bar-frame hive. I think in justice to our county expert I ought to say that he is no way responsible for it in this neighbourhood, as I don't think he has examined a single hive within two miles of me.

I was very much pleased to see the 'Platelayer's' letter, as I was afraid the foul disease had reached him from his silence, and having heard that it was getting very close to him. As the old saying is, prevention is better than cure, I would advise the 'Platelayer' to speculate in a bottle of Calvert's No. 5 carbolic acid, and use it amongst his hives, if he has not already done so.

A most interesting letter to me is that of Mr. W. G. Campbell (1341) from South Australia, from which it appears that they have got foul brood very bad out there, and that the Hon. Sec. S. A. B. K. A., Mr. Joyner, and a Mr. Bonny, have not succeeded with the Cheshire cure any better than I did; but when adopting the very same plan, that I have been doing, they have succeeded in driving the pest out: I live in hopes of doing the same thing.

It must be a wonderful honey country out there, from their return of a member starting the season with three hives, and at the end of the season having twenty-two hives, and taking 3510 pounds of honey. I endorse our editor's remarks hoping he will send us some more reports of what they are doing out there at the antipodes.—Man of Kent.

'HOW TO DO IT' AND 'THE PRICE OF HONEY.'

[1383.] I have been very unwell, or I would have written before to express my thanks to Mr. Saddler (1352, page 504) for his very lucid and instructive communication; it scatters a great deal of the fog which had hitherto surrounded this subject. The great object of my life has been to live and learn, for which I again tender to Mr. Saddler my best and warmest thanks, and only wish that the long distance could be overcome, so as to procure a private *tête-à-tête*.

'The Price of Honey' (1359). Mr. C. Howes appears to come down sharp on poor unfortunate bee-keepers like myself, who cannot readily get a market for their honey. I have no doubt that Mr. Howes has a great deal of pluck and business go in him, therefore can feel no sympathy for those with less tact and business capacity, regarding such to be 'human drones.' Well, Mr. Editor, I think there are a great many species of drones, beside those we find in a bee-hive, whose value at present, I believe, is not fully known. There are different kinds of 'drones' to be found in the human hive, beside those who live on the industry of others: I mean a kind of mole drone, who move only in their immediate surroundings, believing the whole world to possess their own happy privileges and surroundings.

'*I guess and calculate*,' Mr. Editor, there are more *stocking machines* in Leicester and neighbourhood than bee-keepers, and consequently a greater number of mouths to eat honey, having a much more thickly-populated county than Dorset. Take, for instance, my own district, within a radius of, say, only four miles, I can count about forty bee-keepers, who keep from ten to thirty hives each, more or less, and not what is worthy the name of a town within twenty or thirty miles, Salisbury being about the nearest and largest; but in the neighbourhood of Salisbury at the present time there is any amount of honey to be bought for 4*d*.—such as it is. But to return to my own district, What is the result of so many keeping bees, mostly on the old system? Why, just this, some of them read the *B. J.*, and at the close of the honey-harvest, see the advertisements for honey at 6*d*. or 6½*d*. per lb.; they at once have recourse to the 'sulphur pit,' unless some one more humane comes to the rescue, when you may have any amount of bees for the taking away. The honey is at once hawked about from door to door by the cottagers' wives at 6*d*. per lb., every village, or what some may call town, is besieged with honey-sellers at 6*d*., or some more lucky ones may get 6½*d*. Now then, Mr. Howes, I would like to know how you would succeed in cramming honey down people's throats at 1*s*. per lb., or getting a wholesale depôt at 9*d*. per lb. You might as well undertake a journey to the moon, I think; while we poor unfortunates are daubed drones and grumblers because we ask the co-operation of our County Associations, and 'it serves us right if we have no buyers in our district.' Well, well, and what next must we read?

Just one word more, Mr. Editor. I see in the last issue, which I call the leading article, page 509, on 'Keeping our Colonies Strong,' which I always read with interest, believing it to be from your valuable pen, where in the third paragraph you touch on the same question of the sale of honey by County Associations or Secretaries, evidently the outcome of (what Mr. Holmes calls) my 'grumbling;' the light in which you put it, the thing, as you say, would be very untenable; but that is not what I proposed, to send honey to County Secretaries would be simply madness. What I suggested was just this: Members of County Associations should communicate their wants to their Secretary, who would be supplied with the names of County Secretaries by a properly-arranged system of co-operation; should be in communication with the wholesale and retail market in their several districts; could easily get a supply sent direct to the consumer or retailer from some of the members who have put themselves forward, and, doubtless, would be only too glad to allow a good commission on such sales. So effected in this way, there would be no double freight to pay or risk to run by the County Secretary. This would not prevent Mr. Holmes, or any one else, from paddling his own canoe if he prefer, but it would be a great boon to those living in districts like mine. Of course, there are other details to be worked out, but I submit they are not of a very gigantic or difficult character.—Sherborne, *Dorset, November 28th.*

EJECTION OF CHYLE FROM THE CHYLE STOMACH OF THE BEE.

By Pastor Schöfeld of Tentschel, near Wahlstadt.

The opponents of my theory, which assumes the food for nourishing the brood to be prepared in the chyle stomach of the bee, and ejected from it into the cell, support their view, according to which chyle is a product of the salivary glands of the bee, by the mere assertion that the contents of the chyle stomach cannot be ejected externally. The part of the neck of the organ called by me the mouth of the stomach, projecting into the chyle stomach, is taken by them to be a valve, which, as it consists of only two very delicate membranes, the intima and the cellular layer, they think would close, or rather turn over, immediately on the contents of the stomach being pressed forward, thus making ejection quite impossible. This opinion, however, is based on a complete misconception of the structure of this organ.

I have fully described its real importance in the

Nördlingen Bienenzeitung, and have shown that there cannot be any question here of a valve arrangement.

For our present purpose I have only to explain that the peculiar prolongation of the neck of the mouth of stomach with the chyle stomach presents no hindrance to the ejection of the chyle.

As shown in sketch 1, which represents a longitudinal

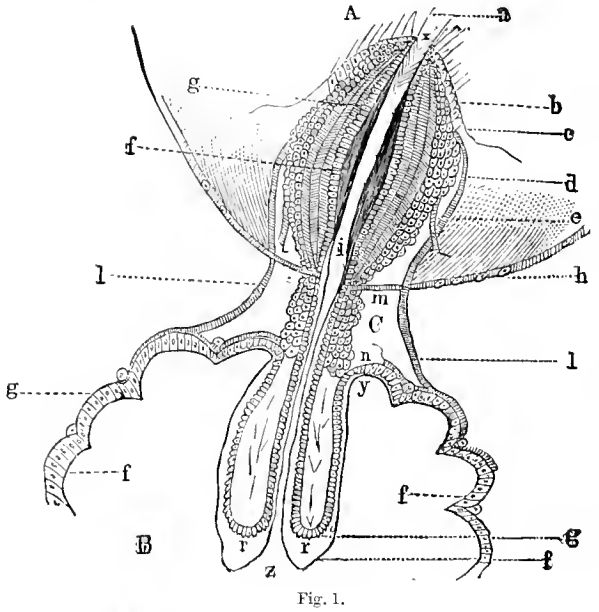

Fig. 1.

a. Feelers at the tip of the lips.
b. Intermediate tissue.
c. Longitudinal muscles.
d. Annular muscles.
e. Safety muscles.
f. Innermost membrane (Intima).
g. Layer of cells.
h. Annular muscle in the honey-stomach.
m–n. Neck of the mouth of the stomach.
i–z. Alimentary tube through the mouth of the stomach and neck.
y–z. Prolongation of the neck.

section through the middle of the honey stomach A, the mouth of the stomach, and its neck C, and the chyle stomach B, the real neck of the stomach mouth (*m–n*), which unites the honey stomach and the chyle stomach, consists of three membranous layers, being the intima, or innermost membrane, the cell layer, and the membrane of the annular muscle. The latter membrane disappears where the neck enters the chyle stomach at *n*, and then the prolongation inside the chyle stomach consists only of the intima and the cell layer. But these two membranes form a turning-in or duplicator. The intima having become separated from the cellular layer inside the honey stomach at *i*, it passes as through a round aperture of the chyle stomach into the latter for a distance of one millimetre; then again it takes an upward direction, and enters the intima of the chyle stomach, while the cellular layer follows, but before the turning point upward of the intima is reached, it retreats and passes into the cellular layer of the chyle stomach. By this simple but wonderful formation of a duplicator, *the honey stomach has become moveable*, which is of great importance to the bee, for when the honey stomach during the act of ejecting honey is contracted by its muscles and pulled forward, the contraction of course always commencing from behind, the prolongation turns over. But this lengthens the neck, which now no longer runs any risk of tearing, however delicate the membrane of which it is composed. The mouth of the stomach is now likewise enabled to rise, and so is the lower part of the honey stomach when the bee wants to obtain a supply of pollen from its honey stomach. But in order that the turning outwards may not be carried further than necessary, the mouth of the stomach is united to the chyle stomach by a number of muscular bands, which I have called safety muscles in the sketch (*e*). They are not generally in a contracted state, but more in the shape of a semicircle; when, however, the turning outwards takes place they contract, and thus prevent an excessive extension. The presence of the safety muscles proves that the duplicator exists for the purpose of being turned outwards when necessary.

From this it is evident that because a turning outwards must take place during the act of ejecting honey, owing to the forward movement of the honey stomach, which necessarily follows, there is a possibility of such tilting to happen when ejection from the chyle stomach takes place, that therefore the prolongation forms no hindrance to the act of ejection.

The mechanism of the ejection of the chyle is not more complicated than that of the ejection of honey. If the bee, in order to eject chyle, contracts the walls of the chyle stomach so that the contents of the stomach are lengthened out in front by pressure, and if, while this is taking place, the bee also contracts its honey stomach for a short moment afterwards, whereby the latter, as we have seen, is forced forward, then the intima or innermost membrane, which from *i* to the tip of the lips is firmly united to the mouth of the stomach, cannot help following the forward movement. It rises, therefore, from *i* to *z*, and when arrived at *r*, the cell layer rises simultaneously, rolling up from *r* towards *i*, *i.e.* the whole prolongation is tilted outwards.

Representing the duplicator by single lines as in Fig. 2,

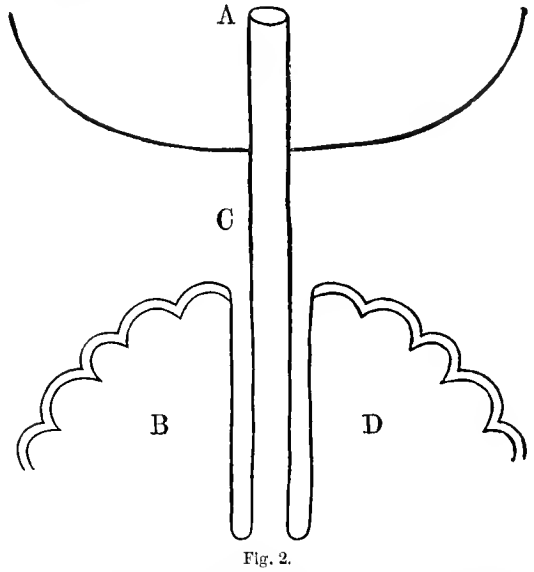

Fig. 2.

where A shows the honey stomach, B the chyle stomach, C the neck, and D the end of the duplicator, it will at once be understood that the duplicator must be tilted outwards when the honey stomach, with the walls of which the mouth of the stomach is firmly grown together, moves forward in consequence of the contraction of the muscle. But if the tilting takes place but a fraction of a millimetre, the chyle, in moving forward, following the pressure of the muscles, must necessarily also enter the tilted prolongation, and pass through the mouth of the stomach into the honey stomach, by the renewed contraction of which it is then ejected into the cell.

But the principal thing is this: the bee itself shows us that it is able to eject the contents of its chyle stomach. It is an old and well-known saying that worker-brood and drone-brood are supplied at first exclusively with completely digested chyle, which can at

once pass into the blood; and that finally honey and pollen are administered shortly before the cell is sealed. The pollen is even visible to the naked eye through the skin of mature larvæ, and as the larvæ cannot live upon pollen alone, it was simply taken for granted they receive honey in addition. But as a sudden unprepared-for change in the food from pure chyle to honey and pollen, which the larvæ would have to digest, would have appeared too striking, Von Berlepsch was one of the first to assume (see *The Bee and its Culture*, 1869, § 50) that a gradual change takes place from the one kind of food to the other. He was mistaken, however, in supposing that the larvæ received as intermediate food partly chyle from the chyle stomach and partly undigested pollen from the honey stomach. Exact and careful microscopic examination of the food in the cells rather goes to prove that as long as the larva in its curved state at the bottom of cell does not quite fill up the cell—which is not the case till the fourth day—it only receives pure chyle, but as soon as the larva completely fills up the base of its cell, commencing from the evening of the fourth day, the larva, which now requires a large quantity of food, receives only chyme from the chyme stomach of the bee, instead of being supplied with chyle. This chyme is not yet completely digested, consequently it still contains the husks of the pollen-grains. At first there are exceptionally few husks (cuticula) in the food, but their number increases from hour to hour, until finally before the cell is sealed the larva is literally stuffed with chyme full of the husks of pollen-grains. As the latter, from the fourth day, can with certainty be made out in the food which still remains deposited in the cell, this is a sure proof that the pollen has been ejected from their chyle stomach by the workers attending to the feeding of the brood, because it is impossible for any digestion of pollen grains ever to take place in the honey stomach of the bee. I took the precaution to examine the contents of the honey stomach of more than 100 bees, and always found entire pollen grains only, but never any cuticula. Only very young bees which only quite recently left the cell are found to have pollen husks in their honey stomach, because they were fed with chyme by the old workers. — *Deutsche illustrierte Bienenzeitung.*

SWITZERLAND.

The half annual general meeting of the members of the Société Romande d'Apiculture was held lately at Neuchâtel. When nine o'clock a.m. arrived, the time appointed for the opening of the meeting, the members were so much interested in the examination of the bee show which was being held at the time in the same building, that it was not without difficulty that they could be drawn into the meeting-room. At first it was proposed that it should be held in the Salle du Tribunal, but it was afterwards decided in favour of one of the rooms of the new Academy building. It is understood that the bee section of the exhibition was a great success, and a number of visitors expressed their surprise at what they saw in it.

At the opening of the proceedings the Board of Management was represented by three of its members, but M. de Ribeaucourt arriving a short time afterwards made four. M. Bonjour was voted to the chair, who mentioned with regret the unavoidable absence of M. Fusay, the President, and M. Bertrand. The minutes of the previous meeting held in the spring were read and adopted without discussion.

M. Woiblet explained the position of the accounts up to the 31st of August. His statement showed that the receipts had been 2296 francs 50 cents, and the expenditure 1382 francs 85 cents; balance on hand, 913 francs 65 cents. It was stated that the Society consisted of 311 members. The retiring members of the Board were Messrs. de Dardel, Fusay, and de Ribeaucourt, but were re-elected by acclamation.

M. Vielle, who had been specially charged to report to the meeting his opinion on the exhibition, expressed his regret at being unable to do so fully, as it had not been possible for him to follow regularly the jury, but, generally speaking it was agreed that it excelled all former ones, and was even an improvement upon that held at Zurich in 1883. The foreign bees were all pure; they constituted a good collection, and prizes had been awarded to all of them. The show of hives and stocks took the form of a small village, and represented the systems most used in the country, such as Burki-Jeker, Dadant, and Layens. Their good quality and construction were much admired. Very few straw skeps on the fixed system were to be seen, but these few were good specimens of workmanship. The show of honey was both large and interesting; it was a great attraction inside the Hall. There was also a good display of comb-foundation and wax in cakes. Several makers exhibited a number of new and modified bee implements, and the number of extractors on view was twenty-seven, besides those exhibited by the Society itself.

M. P. von Siebenthal having stated that at Bex there was an opinion among the bee-keepers that the Layens frames should be made two inches shorter, M. Borel-Petitpierre gave it as his opinion that Carniolan bees are an exception, and can be worked with hives of an exceptionally large size.

M. de Ribeaucourt stated that he had kept Carniolans for the last eight years. His experience was that they had somewhat altered their ways in the course of years; they were now less inclined to swarm, and were very profitable. Truly, in the course of time they became crossed. They were rather late in developing their increasing propensities, but this, for bee-keepers in mountainous districts, was an advantage.

M. Langel remarked, however, that he had some stocks of crossed Carniolans. His were passionately fond of swarming, and became strong too soon in the spring It appeared to him, therefore, that his study of the Carniolan bees could be carried a little further.

M. J. Bonjour had every reason to be satisfied with his Carniolan bees. His experience was that they became strong early, and as a cross they were all that could be desired.

After a few remarks made by M. Nouguier upon the same subject, M. Langel would like to know if there were no means of establishing a honey market in order to assist exhibitors to dispose of their honey? A day for such a market might be fixed, as is done at Schaffhouse with advantage.

M. Lienhard seconded.

M. de Ribeaucourt replied to the effect that the question of a honey market had been mooted a year ago. The establishing of such a market would entirely agree with the objects of the Society, which were intended to promote the production and sale of bee products. He was in favour of an annual sale.

M. Vielle stated that almost all the exhibitors had put a selling price on their exhibits; in fact, he knew some of them who were anxious to sell.

The conversation became very general upon this subject, and in the end it was decided that an advertisement should be issued, informing the public that a honey fair would be held in the pavilion on the following Wednesday.

Before closing, M. Archinard suggested that this question of a honey market should be further considered and reported upon at the meeting to be held next spring. M. Archinard's suggestion was adopted.

This done, M. Marc Boand read a paper upon propolis and the various ways in which it can be used.

Mr. Boand concluded by suggesting that a tastefnl certificate, suitable for framing, should be issued to all

the members of the Society, as is done by the Horticultural Society, his opinion being that such a certificate might act as an inducement to join the Society.—*Revue Internationale d'Apiculture.*

NOTICES TO CORRESPONDENTS & INQUIRERS.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

W. H. A.—1. *Temperature for Store-room for Honey.*—Sixty to seventy degrees. 2. *Honey left in Outhouse.*—Will be granulated.

J. Kennedy, *Coleraine.—Weeping Sections.*—Is the dampness complained of only condensed moisture? If it is sticky probably the sections were removed from the hive before the bees had fully thickened the cappings. See reply to 'W. H. A.' Could you not manage to extract them without removing the comb from the boxes? *Partly* extract one side, then reverse and do about half that side again, reverse and finish. You would find built-out sections valuable for the first honey-flow. If granulated, you have no choice except to break them up. Let them be in a warm room for a few days before attempting to extract. It is advisable to keep section-cases that may be on the hives rather late in the season carefully and rather warmly covered up, in order to encourage the bees to thicken the cappings sufficiently. Refer to 'Bleeding Sections,' p. 529.

J. P. O.—1. *Bee Farm.*—You will find in Mr. Simmins's new book, *A Modern Bee Farm*, some practical advice and some matter-of-fact figures as to the cost and conduct of a bee-farm. 2. *Bullfinches.*—If disinclined to shoot them, use a decoy cage.

H. P. O.—*Honey.*—The honey is, no doubt, pure, but has a peculiar flavour, as if the source from which it had been partially gathered had imparted a slightly rank odour; and, like some of the Jamaica honey, the grain is rough.

Ernest.—*Sections still on.*—It is very undesirable that bees should in any way be disturbed at this season of the year. If the supers are well and warmly wrapped up and kept dry it would be prudent to leave them where they are till a more convenient season.

J. H.—Gravenhorst's *Der Praktische Imker* has not been translated into the English language.

J. H.—*Honey Dew.*—This may be distinguished from honey by colour, taste, and smell. The colour, more especially of that gathered from the sycamore and oak, is of a sooty blackness; the taste is sickly and is perceptibly different from that of honey; the odour is unpleasant.

COWAN'S GUIDE BOOK.

A NEW EDITION of this Work will shortly be published. Intending Advertisers must forward Copies of their Advertisements during the present week.

Business Directory.

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HONEY GLASS MERCHANTS.

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Pearson, F., Stockton Heath, Warrington.

NOTICE.

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THE
BRITISH BEE JOURNAL

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Editorial, Notices, &c.

HONEY IMPORTS AND EXPORTS.

It is with no slight feeling of satisfaction that we have written the above words,—'and exports.' They indicate that patience has met with its reward, and that a triumph has been achieved. There is a little history connected with this which should be narrated here.

In former times 'Honey' had its place in the annual returns of the imports and exports of the United Kingdom, but in the year 1871 it was struck out by the powers that be 'as being insignificant and of no interest to the community.' Since that time the honey industry has vastly increased, chiefly through the institution of the British Bee-keepers' Association and its affiliated societies and the dissemination of bee-literature; and a very natural desire arose that honey should be restored to its former place in the annual published returns. In February 1885 we suggested that a representation should be made by the Committee of the B.B.K.A. to the Board of Trade of the great interest now taken by the bee-keepers throughout the kingdom in having reliable information respecting the imports and exports of honey. This suggestion was adopted, and in due time we were informed, through a communication from Mr. S. Seldon, of the Statistical Office, H. M. Customs, to E. H. Bellairs, Esq., dated 6th January, 1886, that 'on a representation of the Board of Customs to the Lords of the Treasury, the suggestion contained in your letter, dated February 16th, that honey should become a recognised article in the lists of imports, has been approved by their Lordships, and that from the 1st inst. the particulars of honey will be duly registered in the books of this office.'

Since the beginning of 1883, through the kindness of Mr. Bellairs, bee-keepers have been put in possession of the value of honey imported into the United Kingdom month by month. But this information was incomplete and insufficient, and to some degree fallacious. We desired to know the quantity of honey represented by the annual value, the price it fetched in respective countries, the countries from which the honey was exported, the amount re-exported to foreign parts and that retained for home consumption; and without these data we were without a full knowledge of the facts.

The Annual Statement of the Trade of the United Kingdom with Foreign Countries and British Possessions for the year 1886 has just been published, and from it we are able to extract the information of which we have been so long in search.

The amount of honey, its value, and the countries from which it has been imported into Great Britain, are as follow :—

	Cwts.	£
From France	994	2,479
„ Portugal	560	735
„ United States of America	4,569	5,830
„ Spanish West India Islands	5,272	4,618
„ Chile	7,352	7,505
„ Other Foreign Countries	694	1,160
Total from Foreign Countries	19,441	22,327
From Australasia	332	578
„ British North America	426	618
„ British West India Islands	1,354	2,087
Total from British Possessions	2,112	3,283
Total	21,553	25,610

From the above we gather that 2,413,936 pounds of honey have been brought into this country, the mean value whereof is a slight fraction less than 3*d.* per pound. French honey obtains the highest price, being close on 5½*d.* per pound, while that from the Spanish West India Islands is the lowest, being rather less than 2*d.* per pound. The largest quantity comes from Chile. We have heard little of Chilian bees, or of the management of bees in that country. The southern and central portions of Chile, especially the broad valley of Aconcagua, are, we are aware, very fertile; and we presume that the honey is largely produced in those parts. The northern portion of Chile is for hundreds of miles a sterile waste, where vegetation is unknown and where rain is not seen once in a decade; yet in 1883 Chile exported 1,310,256 kilogrammes of honey; in 1884, 1,864,761; in 1885, 1,055,177; the kilogramme being rather more than two pounds. Now, while we are familiar with Californian, West Indian, French, and other honeys, we do not remember having ever seen Chilian honey exposed for sale; and we have often been exercised in our minds as to the ultimate disposal of the amount exported,

We think that the statement of the exports of honey may possibly shed some light upon this. John Ruskin says that 'there are two sides to all things, and God means us to look on both.' We may apply this remark to foreign honey. We have hitherto been cognisant only of the value of honey imported; we now have before us both sides, the obverse and the reverse.

The amount of honey exported from Great Britain to other countries, with its value, is as follows:—

	Cwts.	£
To Germany	8,526	7,536
,, Holland	6,821	5,766
,, Other Foreign Countries	4,181	3,870
Total to Foreign Countries	19,528	17,172
To British Possessions	270	396
Total	19,798	17,568

Deducting the exports from the imports, the result is that only 1755 cwts., or 196,560 lbs., were retained for home consumption in the year 1886; and to that extent the bee-keepers of this country are not equal to supply the home demand. In previous years in making our comments on the 'Honey Imports,' though we guarded ourselves by the reservation, 'Provided no honey was re-exported,' we calculated that the amount of foreign honey imported to supply our wants amounted to a very considerable amount beyond the reality; and we feel assured that all bee-keepers, now that the true facts are apparent, will feel a sense of relief, and a weight of many thousands of hundredweights will be removed from their breasts. The *rationale* of the matter appears to be—Great Britain is a great carrying nation; the honey is shipped from many foreign ports, and London and Liverpool are the convenient entrepôts from which it is transhipped to foreign countries. In this way it is possible that the whole of the imported Chilian honey may be taken *en bloc* to other ports.

There is naught in the previous statement that should cause bee-keepers to relax their efforts or to rest upon their oars. It is clear that we are not equal, or rather that we have failed, to supply the home demand. This can, and ought to be accomplished. And besides that, it behoves us so to popularise the use of honey that it should not be, as it has too long been, an article of luxury for the higher and the middle classes, but should be looked upon as a necessity for the poorest of our people.

MY BEES

By Mrs. Reginald Bray.

(*Continued from page* 534.)

Chapter V.—Condemned Bees.

August—cruel August came round all too soon for me and my bees. How I longed as I looked at the hives to be able to take them all with me. I *was* going to take eighteen canary birds, a bullfinch, two ponies, and eight children; but still a large portion of my heart was left behind. True, we were going to one of the loveliest parts of Surrey, about six miles from Guildford, where the wild heather and great woods of Scotch firs almost made one believe that it was in Scotland; but as I have heard prettily expressed by the poet, 'Home is where thy affections rest,' and the *Bee Journal* had brought out a most aggravating little poem, which would run in my head, 'Hum, sweet hum! there's no sound on earth like hum, sweet hum.' Well, why should I not have 'Hum, sweet hum,' at Shere as well as near London? Besides, there I should have a chance of heather honey, and delude myself as much as I would, I never could allow that the flavour of my honey was equal to that of the Scotch.

The worst was that I had already spent a good deal of money upon my bees, what with new hives and skilled labour from Messrs. Neighbour, and one thing and another; I had to undergo a good deal of chaff and sarcastic queries as to 'when my bees were going to pay?'

I always, with great presence of mind, immediately alluded delicately to that 'forty pounds' which they were devouring so ruthlessly. This always checked unseemly remarks, but I own I did not like to talk of buying a new stock and hive in the country. It was too late in the year for a swarm, and to buy an entirely new hive with strong stock would be a very expensive affair.

Suddenly a brilliant idea shot through my mind—'Condemned bees.' I was in the very land for them. The cottagers all round kept bees on the old-fashioned principle, and destroyed all their best stocks every autumn for the sake of the honey. Now, perhaps, some of my readers may not know what 'condemned bees' are, so, for their sakes, I will give a description, for there is no cheaper way of starting bee-keeping, if you do not mind the trouble, besides the great satisfaction of having saved the lives of a reigning monarch and all her subjects.

Condemned bees are the bees which are going to be destroyed when the honey is taken. A hole is made in the ground in which sulphur is put and set alight. The hive is stood over it, and in a short time all those happy, merry little lives have succumbed, and the hive is a mass of dead and suffocated bees. I never saw the sight, and I would not do so for anything that could be offered. When one values the life of every bee one has, when one laments being stung because it costs a bee's life, why the idea of killing bees seems nothing else but wholesale murder. Oh, when will cottagers learn the folly and the madness of destroying their bees?

Happily, in many parts of England straw skeps have quite gone out, but in our part of the world they are still extensively used; and it is quite extraordinary how difficult it is to make them see the wisdom from even a business point of view alone of saving their bees. They will, I suppose, never be convinced until they find that their honey no longer meets with a sale. When one compares the beautiful virgin honey in the section boxes with the nasty mess they bring one, full of bee-bread, dead grubs, and old black combs, one feels inclined to have nothing to do with it. The worst is that I feel compelled to buy a good deal of it every autumn. The cottagers have been accustomed to come round for years and years, one has not the heart to refuse to buy, so I always do so, and not only that, but they always ask the best price of good super honey. I do not like to be mean, so I always pay it.

This may not be business, but I am afraid I am not very business-like. The only thing I take care to do is, only to buy from my old-established customers, and as these die out I shall certainly refuse to buy any honey except that which is worked on modern principles.

Now to return to my condemned bees. I had often read that the cottagers are thankful to let you drive the bees which they are going to destroy. You give them one shilling for the bees, and they have the advantage of having their honey all free from the crowds of bees

which they have suffocated. However, it is not so easy as you may think to get them to see their advantages. As you know there is an immense deal of superstition about bees. Many of them considered it 'unlucky,' and would prefer to kill their bees as their ancestors had done before them.

It was some time before I could hear of any that I could have; and it was now nearly the end of August. My hive, one of Messrs. Neighbour's fifteen-shilling ones with straw sides, was all ready, and I began to feel anxious. I kept reading in the *Bee Journal* that you ought to have two strong stocks and unite them together. That if you had only one they would probably all die off in the spring from the extra work they would be obliged to do in the autumn.

This was obvious, for just as the unfortunate bees have filled and sealed over their honey for the winter you turn them all out, put them in a new hive, and expect them to do the greater part of their summer work over again. A worker-bee's life is a hard one, so hard that during the working season a bee only lives about six weeks. If it were not for the extraordinary fertility of the queen the bees would soon dwindle away; but as she lays between two and three thousand eggs a-day, the supply is constantly kept up.

Therefore, with driven bees in the autumn, it is necessary to supply them with as much syrup as they can possibly take, as they can fill their cells with this far more rapidly than gathering the honey from flowers, and at far less fatigue. Besides in the autumn there is very little honey to be gathered as most of the honey-producing flowers are over.

Feeding also stimulates the queen to go on laying, and the greater number of young bees you can obtain the more chance for your success with your bees next spring.

One evening the keeper asked to speak to me, and told me that he had a hive which he was 'just going to take,' and if I liked I was welcome to the bees. That night I could scarcely sleep for thinking of it.

There were many difficulties before me, for the keeper's cottage was at the top of a high hill on the Downs, and it would be quite impossible to carry the bees from there, so I thought the best plan would be to drive round and up by the road taking my new bar-frame with me. I did not know then that it is best to drive bees in the evening. They go more quietly into their new hive, and also you get all the bees, as in the middle of the day there are so many out at work. But this is not a rule by any means, you may drive at any time of the day you like. I only mention it, so that, if equally convenient, you can drive your bees late, you will also find them much quieter. Of course I do not mean in the dark, only just when the day is beginning to close in and few bees out at work.

No! if you want to be stung try doing anything with your bees at night.

My eldest daughter, who in those days showed a greater turn for bees than she has developed since, went with me. The hive was placed in the cart. The smoker, brown paper, and matches (pray do not forget them, as it is so easy to do), veils, gloves, tapes for trying the brood comb in, and scissors, were all put in a basket, and we set off.

The keeper's cottage was situated in a lovely spot on the top of the Downs with a view stretching far away to Leith Hill, Ewhurst, Charterhouse, Hind Head, and Black Downs; but we had no eyes or thoughts for anything but bees.

The keeper and his family came out with great interest to watch the proceedings, as they had not the slightest idea of what we were going to do.

I gave N. charge of the smoker, and with great difficulty, for the hive was a heavy one, succeeded in turning it upside down in a pail. The skep was put on, and the driving began. The bees did not run very quickly, it was a dull, showery day, and the driving took a long time, over half-an-hour. N. helped me a good deal, but I know I was pretty well tired by the time I had got all the bees into the skep.

I arranged with the keeper to take the brood-comb and some of the honey so as to start the bees, and transferred it, as has been previously described, and tied it into the frames with tapes. Then I took the skep to shake them in. As I had done on other occasions I gave a sharp shake and the bees fell with a thump into the hive.

When, oh, horror! they all came up again. Up, up, they rose in myriads, the air was peopled with bees, one looked up and it had the effect of a brown snowstorm. I could have burst into tears! Happily I had stood an empty skep on their old stand to collect any wanderers, and thither they hurried back as fast as possible. They were perfectly good-tempered, or else too utterly frightened to think of us, for I only got one sting the whole time.

Said N., 'Let us look into the hive and see if the queen is there.'

I felt no hope, but sadly turned back the quilt and looked in. Oh, joy! yes, there was her majesty on the brood comb with about fifty bees.

'Hope springs eternal in the human heart,' and I sat down to wait whilst my bees collected themselves in clusters on the skep in the old place. I had to drive them in with smoke; but at last they were all collected once more. Then I again cautiously approached the hive, shook them in and covered them up instantly, and with a long-drawn breath felt that they were safe at last. The entrance I had already closed, as we had to take the hive away, so I felt that now I had really got them quite successfully. The hive we carefully tied up with cords, for fear the lid should slip; and with what joyful hearts I can hardly describe we drove down the hill.

It was long past lunch-time, but I could not rest until the hive was placed on the stand prepared for it at the bottom on a little copse facing the south and completely sheltered from the north and east. I did not open the entrance thinking I had better leave them to quiet down for one hour or two before I set them free.

Later in the afternoon I went down and opened the entrance. The bees came out as quietly and happily as possible. It was almost impossible to believe that they had gone through all the commotion of the morning. Here they were working as busily as if they had never been disturbed in their lives.

I do not think any bees ever gave me quite the delight of those,—I had actually saved their lives. As each one hummed happily by, I said, 'But for me you would now be dead.' They did not evince any particular sign of gratitude, but in this life one ceases to look for much except when it is a sense of favours to come.

I fed those bees continually. I never saw bees take down so much, a pint was gone in no time. It was such a continual trouble going down rather a steep hill to fill the bottle that I set myself to work to make a feeder which would hold a quart at a time. I thought if it were home-made it would cost me nothing, and I was determined not to spend another unnecessary penny. Accordingly I got a biscuit-tin, and with a chisel and mallet I cut the top of the lid out, leaving about half-an-inch all round.

Happily some one broke a window just at this time, and out of the broken pieces I got the glazier to cut me a piece of glass which I put into the lid myself with putty. So far my feeder had cost nothing except a penny for putty, and I began to feel rather triumphant. Then came a little difficulty, I wanted a hole cut in the bottom of the box, and a little funnel soldered in through which the bees were to come up, and another at the side through which I could pour the syrup. For this I was obliged to go to the blacksmith. Then I wanted a small board with a number of holes in it which was to fit the tin

exactly, with a hole in the middle through which the funnel would pass; the syrup would be poured through the funnel at the side, the board would float upon it, and the bees would take the syrup through the holes. I cannot say that I had shown any great inventive genius in this, as there are many kinds of float-feeders. The only difference was that mine was home-made out of a biscuit-tin. The little wooden float I had to get from a carpenter; and I believe when complete it cost me rather more than if I had bought a new one; but there would not have been the same satisfaction about it.

It did not answer very well, for the tin bent so easily, and then the float did not rise and fall on the syrup as was intended; but as I looked at it several times a-day I kept it in order. I would not recommend any one to try and make one like it.

One thing I have never confessed to any one before, but in a book of this sort no disaster must be left out. When I had finished feeding in the autumn and took my feeder off, I found such a number of drowned bees at the bottom under the float, that N. and I opened, emptied them sadly away, and kept the matter to ourselves, for I had boasted a good deal of that same feeder.

One thing I have forgotten to say, do not be deluded by being told that at the end of three or four days the bees will have mended up the combs tied into the frames, so that you may cut the tapes and draw them out.

Knowing that bees have a great dislike to the tapes, I went at the end of a week to take them away. I had given more than the time specified, so I thought I should be quite safe. I opened the hive, turned back the quilt, and cutting the tapes carefully drew them out. To my great dismay down fell the comb, as the bees had not made it nearly fast.

I did not much like the idea of putting my hand right into the middle of the hive to fish it up again. But there was nothing else to be done, and I had to get it up as best I might, tie it once more into the frame and put it back. After that I left the bees to gnaw the tapes and get them out by themselves.

If they did not choose to get their work done in proper time they could scarcely expect me to help them. The only thing I did was when I saw them struggling with a long piece of mangled tape at the entrance, was to catch it with a bit of stick and pull it out for them. In this way the tapes were all got out. It was rather a slovenly way I acknowledge, but wait till you have put your hand into a bee-hive and then you will not blame me.

When it was the end of October, and the time had nearly come for leaving Shere, even the thoughts of returning to my other hives could scarcely reconcile me to leave these special bees who seemed to belong to me more than any others.

I had fed them with syrup until every comb was full of honey, but still haunted by the idea that *one* set of condemned bees would not be able to take care of themselves and would die off in the spring, I determined to make every possible arrangement for their comfort.

That week I read a letter from a correspondent in the *Bee Journal* describing how he had fed his bees entirely on moist sugar, and how splendidly they had done. He described how he had filled the space on each side of the hives between the dummy boards and the sides with moist sugar, and how this had saved all the trouble of syrup feeding and the stock so fed had done as well as any of the others.

I sent to London to Messrs. Neighbour for the best West India sugar, as this has a great deal of moisture, and is recommended as the best to use.

N. and I crammed it into the hive by handfuls. We pressed and we squeezed it in until we had got twelve pounds stowed safely away as a winter resort for the bees.

Then we covered them up for the last time that year and left them, enveloped in a most picturesque straw hackle which one of the Shere men had made for me in the most artistic manner. We left them feeling that whatever happened at least they would not starve.

The next time I saw those bees was on Christmas-day. It happened to be a lovely, sunny day, and the bees, tempted by the warmth and sunshine, came out to greet me in the most considerate way, thus adding not a little to the happiness of the season.

Before I go further I must advise my readers never to be tempted as I was to fill their hives with sugar. The following spring, as I was not at Shere at the right time for inspecting my hives, I asked the afore-mentioned cousin to get an expert who lived near to overhaul my bees, and see whether they had finished all their honey and sugar and required feeding.

Oh, the state of that hive when he opened it! It was simply a sticky and unpleasant mess. The moisture condensed in the hive had partly melted the sugar, and the state of it was past describing. The bees themselves were in the most flourishing condition, and had not eaten half their supply of honey.

The whole hive had to be cleaned out. He got an empty bar-frame and moved all the frames in, then he thoroughly cleaned it out, and replaced the frames. I have never tried feeding my bees with moist sugar again.

(To be continued.)

Foreign.

NORWAY.

Bee-keeping in Norway.

We had a very pleasant and instructive conversation with Mr. Young, and, of course, made all possible inquiries about the state of bee-keeping in Norway.

Bees can be kept very well as far north as Drontheim. In Norway, as here in Canada, there is no method by which the number of colonies can be ascertained, but the number of colonies kept are estimated at about 40,000; of these about 2000 are kept in the moveable-frame hive, the balance in straw skeps.

The Government of Norway realise the importance of apiculture as an industry, and have sent Mr. Young, at their expense, to Canada and the United States, to promote the interests of bee-keepers.

Wintering is done very successfully in some of the old straw-skep hives. Many think the bees in the moveable-frame hive do not winter as well, but such is not the case; on the contrary, the honey taken by means of the moveable-frame hive is mostly extracted. On account of so few frame-hives, and but little comb-foundation being used, the average yield per colony for the country is not great, but he thinks if properly conducted it would be 70 pounds to 100 pounds per colony.

The chief sources of honey are clover, basswood, and heather. The clover is mostly alsike: there is but little white.

The Norwegian Bee-keepers' Association has some 1500 members, has been in existence three years, the *Bee Journal* two and a half years. Every member gets this *Journal* free, and the *Journal* is the property of the Association, and under their control; and one having goods to advertise can do so in the advertising columns. Fifty cents entitle a bee-keeper to membership and the paper, which is monthly. Any one not in the country pays $1: this extra charge being made to cover the extra postage.

Mr. Young also very kindly presented us with a copy of his book on bee-keeping. He may justly be called 'the father of advanced bee-keeping in Norway.'—*Canadian Honey Producer*,

FRANCE.

French Bee-keepers and Protection.

At the Congress of bee-keepers held at the Orangeries des Tuileries of Paris on the 23rd of September last, the following resolutions were proposed:—

First.—In view of the fact that bee-keeping is being affected by the cheapness of sugar and the competition of foreign agricultural products sold at low prices, the Congress calls upon the Government to put an import duty of ten francs per 100 kilos upon foreign honey and wax imported into France.

The Congress further records that railway carriage should also be reduced in proportion to the reduction which has taken place of late, and which, compared with the prices ruling twenty years ago, may be computed at twenty per cent.

Second.—Considering how seriously *cérésine* (ozokerite) is competing and ruining the price of beeswax, and particularly in view of the fact that this *cérésine* is often mixed with genuine beeswax, and palmed off to the public as such, the Congress is of opinion that a heavy import duty of, say, 100 francs per 100 kilos should be imposed against this foreign mineral, to the end the interests of apiculture may be protected as they deserve to be.

Third.—Whereas the municipal regulations issued by certain mayors regarding the distance at which apiaries should be kept from public thoroughfares are often dictated by mere personal enmity, the Congress is of opinion that the General Council should be consulted before the new rural code is drawn up.

The Congress is, however, of opinion that all such regulations are an obstruction against the progress of apiculture, and would prefer, therefore, that the principle of liberty secured by the Bill of 28th September, 1871, and provided that '*the keeping of bees as well as that of domestic animals should not be placed under any restrictions*' should remain unaltered.

Fourth.—That whereas tuition is the best means by which rational principles can be rendered popular, the Congress puts on record the hope that a bee station or school be established on one of the State properties outside Paris, viz., at Meudon or at St. Cloud.

The Congress would further suggest that the bee-section of agricultural shows got up by the Government be judged by a competent jury composed of bee-keepers.

It also suggests that when agricultural shows are held in districts where bee-keeping might be carried on with advantage, a bee-section should be added thereto.

The above resolutions are to be forwarded to the French Ministry for Agriculture.

ASSOCIATIONS.

IRISH BEE-KEEPERS' ASSOCIATION.

The Committee met on the 6th inst. Present: Rev. P. Kavanagh (in the chair), Dr. Knight, Mr. Read, Mr. Milner, and the Hon. Secretary. Sample hives made by Messrs. Abbott and Edmondson, after the Association's pattern, were inspected carefully and approved, subject to slight alterations being made in them.

LEICESTERSHIRE BEE-KEEPERS' ASSOCIATION.

The Committee met on Saturday, December 10th, to receive the Report and Balance-sheet. On the Report touching on the weak financial condition of the Association, each member of the Committee present 'came down with some chink,' and expressed a hope that others would follow the example, and that Messrs. Bickley's and De-la-Bere's offers would not fall to the ground. The former, as previously mentioned in this *Journal*, offers to pay 1*l.* to relieve the debt if nine others will do the same; the latter offers to double his subscription if fifteen others will do the same.—E. B.

Review.

A Modern Bee Farm and its Economic Management. By S. Simmins, published by T. Pettitt & Co., London.—This is a useful book for those intending to cultivate bees, more particularly for such as intend to make it a business, as the author gives instructions deduced from his own experience of over twenty years, and says, 'The reader will, therefore, have the benefit of a lengthened and varied experience, and by following one recognised system, there will be little possibility of one being confused by the usual multiplicity of ideas upon any one subject.' Mr. Simmins has endeavoured to place the management of bees before those who wish to become bee-keepers in as clear a manner as possible, and with few exceptions describes only such hives and appliances as he makes and uses. With regard to the value of honey as an inducement to make bee-keeping a business, the author says, 'While an increased production has lowered the value, there is at the same time a larger and increasing demand for the bee-keeper's commodity; and as he now has the benefit of improved appliances there is no difficulty in competing with present rates.' In fact, it appears likely that very soon it will not pay foreign countries to send their honey here, as continued improvements are reducing the cost of production at home.

After honey was superseded by sugar, bee-keeping seems to have fallen into the background, but light began to dawn, and it was some thirty years since that, by using hives wherein all the combs could be removed separately at will, a great stimulus was given to both practical and scientific bee-keeping, consequently the ranks began to swell, as it became known that much larger harvests could be secured than by the old fixed-comb methods, and in every way the bees could be brought more under control.

But more light was yet needed, and *Bee Journals* were established, but it was not until the year 1873 that this country could boast of one, and that was founded by Mr. C. N. Abbott, of Southall, who ably conducted it for about ten years, when it passed into the hands of the Rev. H. R. Peel.

Soon after this paper was established we find Mr. Abbott inaugurating the British Bee-keepers' Association, his object being the diffusion of the knowledge of bee-keeping, especially among the poorer classes, as a means of bettering their condition.

The work consists of 195 pages, and is divided into twenty-five chapters. In Chapter V. the author gives his experience with different sorts of bees, much of which agrees with ours, but when he says that 'There is no doubt that the leather-coloured Ligurians, mentioned by the Americans as being superior to any, are nothing more nor less than hybrids,' we must most emphatically disagree with him. We have never considered the colour of bees in breeding, and have always insisted that other points were of greater importance. Our best Italians have been dark, or what might be called 'leather-coloured,' but they were none the less pure for all that.

We have had the opportunity of studying the bees in their native country, and have repeatedly stated that we have seen dark bees in Italy in parts where not a single bee of the black race exists. The Italian bee-keepers themselves do not put any value on the colouring. Colour has always been considered a point of beauty in other countries; and as there has been a demand for such, the Italian breeders have endeavoured to meet it, but not without very much injuring the race. We

know for a fact that many breeders breed solely for colour in order to supply the English and American trade: this is why such an immense number of imported queens are worthless. We obtained our strain of energetic workers, without any admixture of common blood, but then only by getting direct from Italy such queens as we desired regardless of colour. We therefore believe that there may be 'leather-coloured' Ligurians, and that they need not necessarily be hybrids. Although usually Italians have three bands,—and this is a good sign of their purity,—yet we have seen the pure races producing bees with one, two, and three bands, and that in Northern Italy where a black bee does not exist. We are pleased to find the author in agreement with us on so many points which we have repeatedly insisted upon, with regard to the queen never being too prolific, having only young queens in the apiary, requeening every year, and on breeding to improve the strain. In Chapter X. 'the Economic' hive and other appliances used and made by the author are described and illustrated.

There are also interesting chapters on How to stock a frame-hive, Wintering, the Production of Honey, &c., then there are also the Simmins' non-swarming system, and his method of queen-introduction, as well as a chapter on the production of wax. His own apiaries are described and illustrated on page 148, and much useful information may be picked up by those going in for bee-keeping on a large scale. The estimates given of probable expenditure and income are useful and interesting: and we commend them to the consideration of our readers as coming from a practical bee-keeper; but they should be received *cum grano salis*, more especially as Mr. Simmins himself says, 'I do not by any means wish or intend that the estimated returns are to be taken as implying certainty.' We would suggest that in making the estimate the bee-keeper should put down interest on capital employed, and make a deduction for annual depreciation of plant, &c. Besides a certain allowance must be made for appliances becoming obsolete. This is a heavy item, and at Captain Hetherington's we saw an enormous building, formerly a chapel, completely filled with such disused things.

We have in mind several good bee-keepers who have failed when working on a large scale; and where one would have the energy and perseverance of Mr. Simmins, who has succeeded and made it pay, there are a great many who would find it a serious loss,—at any rate in our climate.

The author recommends planting for bees, and considers twenty-five acres a suitable space to provide pasturage for 100 colonies. We have practised planting for bees, and have no doubt it has increased our harvests considerably: and those who are already farmers and cannot easily get out of their farms would do well to try planting in moderation; but in these times of agricultural depression, when, as is well known, that except in a few favoured localities farming does not pay, we should hesitate to recommend any one to burden himself with land for such a purpose.

We have for many years had a farm on our hands, and although highly cultivated we have no hesitation in saying it has been carried on at a great loss to ourselves. Where any one had to make a living such a loss would be a serious drawback, and would considerably reduce the profits derived from bees. Very much rather would we recommend the bee-keeper to induce his neighbours to plant crops that would provide the pasturage, even if he had to supply the seed for nothing. His advice to intending appliance-makers is good, and we commend it to their serious consideration, as it is impossible for beginners without machinery or capital to compete with long-established firms.

In the practical part the book contains many hints, and it is also suitably illustrated. In addition the neatly-bound copy contains a photograph of the author and his family, one of a frame with queen and workers, and two of his home and covered apiaries. Being written by a practical man, bee-keepers will find in it much that is useful.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. Huckle, *Kings Langley, Herts (see 2nd page of Advertisements).*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

OUR HONEY IMPORTS.

The value of honey imported into the United Kingdom during the month of November, 1887, amounted to 1067*l*.

[From a return furnished by the Statistical Department of Her Majesty's Customs, to E. H. Bellairs, Wingfield, Christchurch.]

'A. E.' WANTS A DIPLOMA.

'Seeking the bubble reputation even at the cannon's mouth.'

[1384.] I want a diploma, and with it the right to write two or more Roman capital letters after my name. It must be something novel and puzzling, B.A., M.A., LL.D., D.D., or even Ph.D., are all too commonplace to satisfy my ambition. In my youthful folly I used to scorn such things, but as one grows grey (or bald) the memories of the follies of youth are not always pleasant companions.

I have gone in for scientific (?) lecturing, and the unpleasant discovery has been forced upon me that, though I may possess the ripe and mellow wisdom of a sage and 'hold not the parchment,' I am as a sounding brass or a tinkling cymbal; but with the parchment, though I may be a numskull no man dare question my ability or qualifications. Would the tale of how I made this discovery amuse you? Draw up your chairs while the wind roars outside and I will tell you. In a quiet old town named Dulborough, so near to S. Kensington that at night you can see the glare of London lights, and almost hear the roar of its traffic, I have a friend. He is large-limbed, large-hearted, and large-brained. He is a schoolmaster; until recently he worked under 'management,' which simply meant the Rector, for, as usual, none of the other managers ever cared a brass farthing about how the school went on. So my friend, as many others of like courage have done before him, simply rebelled and tendered his resignation. Thinking there was an opening he started a middle-class school, and met with success far beyond his hopes or expectations. He is a bee-keeper, and being burly as well, that is a sufficient guarantee that he is a jovial fellow. The worst thing about him is his name. His surname, which is neither pleasant nor poetical, like the rest of us he could avoid; but how he must bless his father and his god-parents when he has to write his Christian (?) names thus:—Jacob Banomi Zachariah Bangs! Wonder if his old man believed in the British nation being the lost ten tribes? Now my friend not only taught small boys by day, but he also filled a much-felt want by opening a series of evening classes under the Science and Art Department, South Kensington.

Dulborough being an agricultural centre he chose Agriculture as one of his subjects, Animal Physiology being another. Although this ancient town boasts of a

mayor and corporation and a history far beyond Julius Cæsar, yet I venture to say that a sleepier place is not to be found in the kingdom. My friend not being a 'native' thought he would help to enliven it a little during the long winter evenings, so he organized 'open nights' in connexion with his classes. On one occasion he got the music class to sing some carols, on another he got a local physician and a Cambridge B.A. to bring his skeleton and lecture in connexion with the class on Animal Physiology; and finding these 'open nights' were appreciated, he asked me to give him a turn on Bees in relation to Agriculture. I agreed and went. I alighted at the station—one of three I remember and 'All change here.' There were seven flys and cabs to take us into the town (which Kelly's *Directory* credits with 7000 inhabitants), and about three times that number of urchins to carry our parcels. In the town itself the stillness was painful, and my footfall on the pavement awakened echoes that made me feel the whole troop of urchins I saw at the station were in pursuit. But presently my eye caught something that attracted my attention, it was a handbill announcing myself to lecture on 'Bees in connexion with Agriculture,' at 7 p.m., and also that A. P. E. Slaughter, Esq., M.R.C.V.S., would 'dissect an eye, in connexion with Animal Physiology,' at 8 p.m. that evening. I found the school, my friend, and his class. I set up my Cheshire diagrams and the few things I had brought, including a few flowers, and waited for the clock to point to the hour; and while doing so my friend, with very great regard for my feelings, went on to explain, *that however able I may be to deal with the subject, the Science and Art Department would not recognise that hour as a lesson unless he took some part, as I was not a 'certified' teacher.* Would I mind him taking the first five minutes, and I following on as his assistant? Of course I did not mind, so he went on to speak of the relative value of certain cereals as food, and introduced myself as about to speak of the value of 'Bees as fertilisers.' My friend was a model chairman, no flattery, no taffy, so, having a fair start, I was soon in full swing, and was alarmed to find it only wanted five minutes to eight, and I only just 'warm' to my subject. I apologised, got a few minutes grace, and went on, till, at ten minutes past eight, I resumed my seat.

When I commenced I began to wonder what had become of my coadjutor with the five Roman capitals only 'certified,' but at a few minutes to the hour I was no longer left in doubt, a head was thrust in at the door, and speedily withdrawn; this was repeated at intervals of a few minutes, until as I sat down in walked a swell as stiff as buckram, carrying a dish covered with a napkin. He sported an 'Imperial.' with the ends well waxed, a masher collar, rings, jewellery profuse, and, in fact, had all the airs of a 'big pot!' I removed my gear speedily, and withdrew into an obscure corner to ruminate, until all being to his satisfaction he commenced by turning to a large diagram on animal physiology, and attempted to explain the various parts of the eye. But I soon found he had made an error, and so did he, as he referred to a long sheet of notes which he had prepared. Correcting himself he essayed to proceed by commencing afresh at the beginning; arriving at the old spot he repeated his former mistake, and went back with flushed face to commence again. This time he did not get so far as on the two previous 'tries' before he said something outrageous, and was gently put right by my friend. This instead of helping him only increased his confusion; until laying down a small cane that he had been using as a pointer, he looked across to a lady sitting there and said: 'I told you so. I have not felt well all day, and several professional engagements during the past fortnight have prevented my reading up the subject. I cannot possibly go on; I will come next week.' (Alas that the wife of a man's bosom should be the unwilling spectator of her lord's discomfiture!) At this a young male student who had been taking copious notes after me, and helping a young lady student to copy off some of them during the interval, gave a loud 'guffaw,' which upset the poor fellow entirely. But my friend was equal to the occasion. He took the diagram, and talked on in his own lucid style, and at the proper moment the 'duly certified' M.R.C.V.S. took up his lance and dissected the eye. How his hand trembled! All ended well at last, as the tales do.

My friend 'J. B. Z. Bangs' wrote me early in June: 'All his students had passed, some with honours. Two in the Agriculture class were disqualified from taking *Queen's prizes*, because they had not sat a previous year in the elementary class.' 'Poor return this,' remarked he, 'for doing two years' work in one year!'

I left that meeting with such an impression of the value of a 'diploma' as I never dreamt of before. Will the B.B.K.A. get chartered as a 'learned' society with the power to grant them? I have found the letters; see how grand they look.—Amateur Expert, A.U.G.

Query.—What do those three letters stand for?

PRICE OF HONEY.

[1385.] I notice that 'Woodleigh' [1378] appears to consider I have said the supply of comb-honey has exceeded the demand. Nothing could be more contrary to my own experience, and if he will again refer to my article [1361] he will find no such statement.

What he will find is I have there endeavoured to show that a *false impression* is always produced early in the season; and a superficial observer is led to believe there is an over-production, when in reality the entire produce of the country is thrown upon the market to be disposed of in three months, leaving the remainder of the year honey-less.

I have yet to see the supply in excess of the demand, neither do I expect such to be case for many years to come. Long before Christmas dealers find the supply slackens, and the price of comb-honey rises considerably, while in many cases it is retailed at something like the old figures. It is just because this article is so abundant at one time, and then so scarce at another period of the same year, that we find such fluctuations in its marketable value.

It would be found were three times the weight of comb-honey placed upon the market between this and next June that has already been produced this year, the whole would be disposed of at higher rates than have ruled during the earlier part of the past season, provided it could be distributed evenly throughout the other eight or nine months. As it is the supply drops off, and the article is lost sight of, until once again it is suddenly brought before the public in large quantities; but by the time it is getting to be appreciated the season's produce is exhausted. All the time this 'gap' is to be found year after year, it is self-evident that the supply is far short of the demand—a demand which is ready to grow with a constant and increasing supply.

Generally speaking, prices of comb have come down considerably, partly because of the 'rush' at the commencement of each season, but principally for the reason that the old rates were quite prohibitory, and such as could not be adopted by any company or individual dealer who had the slightest knowledge of the laws that govern 'supply and demand.' And though the demand is yet in advance of the irregular supply, that is no reason why high prices will ever rule again; but it does show that there is no need to sacrifice good comb-honey at the price of extracted, as many have done as soon as their crop is off the hive.—S. Simmins.

RIGHT-ANGLED *VERSUS* PARALLEL FRAMES.

[1386.] 'Prove all things, hold fast that which is good.' Had Mr. R. A. H. Grimshaw done this I am 'fully persuaded' that he would have written different from what he has done. His admission that he has adopted the broad-shoulder frame proves that he is behind the times. No bee-keeper who wishes to take the most out of his bees could tolerate a hive with a frame at a fixed distance. When I commenced to make frame-hives, Abbott was praising up the broad shoulder, and I adopted it, but after using it for about two months I took a chisel and punched them all off; and would advise Mr. Grimshaw to do the same, unless he is one of those that have more love for drones than honey.

He says 'he went to Nature for her samples.' The rose, the pansy, or the chrysanthemum of the present day—the product of Nature—has not science turned the mens of these flowers into petals? It is the same with a frame-hive. Nature has nothing to do with it, man has brought his superior knowledge to bear on the question, and he sees that by setting the frames a certain way at a certain distance apart he can make his bees do better than they would do if left to themselves.

Again, the question of draught. Before there can be a draught there must be two openings, and it applies as equally to parallel as right-angled frames. The difficulty in manipulating right-angled frames exists only in Mr. Grimshaw's imagination; it is practice that makes the difference.

I deny that giving sheets of foundation at the back is an advantage, as it can be done equally as well at the side of a right-angled hive as at the back of a parallel one.

The modern cure for swarming is room above and air below.

Bees do not store their surplus at the furthest obtainable space away from the entrance, but above and around the brood-nest. In hundreds of cases I have seen honey sealed down to the very door in right-angled hives, and more of it than ever we could see in a parallel one.—JAS. SADDLER, *Forfar.*

FOUL BROOD.

[1387.] Having read a good deal on the above subject, and seeing there are a great many who have not much faith in the *Cheshire cure*, I think it nothing but fairness to give an account of how I cured a very badly diseased stock which had dwindled down to such an extent that they did not cover two standard size frames. The disease appeared in a straw skep belonging to a labourer close by, and having heard they were doomed to the sulphur-pit, I asked if he would permit me to drive them, which he did, when I found that they were as above described. To be certain that such was the case, I sent a piece of the comb with brood to Mr. Cheshire, who was good enough to inform me that it was a very bad case, and advised me to consult your valuable *Journal* as to the best means of cure; which I did, with the result that I got a bottle of phenol as prescribed by Mr. Cheshire, and, after putting them in a new bar-frame hive, with three frames having full sheets of foundation, I fed them with syrup mixed with phenol as per instructions, which the bees took eagerly, and which induced the queen to recommence laying (being then the second week in September); so, after making them up to five frames, I packed up for winter, but not before seeing that brood was being hatched out. Well, letting well alone until early spring, when, on a warm day, I examined them to see how they had fared, during what we all know to be a very severe winter, and to my delight I found three out of the five frames with brood in all stages, and plenty of food. Later on I put more frames and stimulated with a little warm syrup (with no phenol or chemicals whatever mixed with it), which encouraged breeding so fast that I found by the end of May they were preparing for swarming, which I prevented by the usual way, viz., cutting out queen-cells and giving plenty of room. I took 22 lbs. of sectional honey from them, leaving ten frames of food for their own consumption, which about a fortnight since I reduced to seven, and thoroughly examined them, and I found no *foul brood* or any disease whatsoever, and this stock is quite as strong as any I have. I merely write this letter to give heart to those who may have the ill-luck of having this, I may say the worst of all diseases, amongst their busy pets. It is such a simple remedy that any inexperienced person could use it; and I may say that I have not had much experience myself, having only commenced bee-keeping in June, 1885, so it clearly shows that all praise is due to the Cheshire cure for curing this stock so badly diseased.—E. H. PIKE, *Arthur Cottage, Park Street, Slough, December 6th.*

DRONE-COMB.

[1388.] If it is not too late I want to suggest a point that you might mention in connexion with the little discussion in *British Bee Journal* concerning the design of bees in building drone or worker-comb. It is this: In the early part of the season when bees build comb without foundation a fair proportion is sure to be drone, especially if the queen's supersedure is near at hand when drones may be needed, whereas in the fall if a colony is fed and obliged to build combs in which to store the food, the combs, on the testimony of a number who have tried the experiment, will all be worker, no drones being desired. Does not this point pretty strongly to the conclusion that drone-comb is built because the bees desire drone-brood?—*Extract from a letter received from* Dr. C. C. MILLER, *Marengo, November 25.*

ECONOMICAL CUSHION AND FEEDER.

[1389.] This cushion and feeder has many advantages over anything of the kind that I have yet heard of. No quilts are required, there is no trouble in removing in spring to put the feeding-stage on, as it is always there ready at hand. This has ever been a trouble, having to provide so many quilts for winter use; and again in spring they are sometimes troublesome when putting the feeding-stages on, as one hole is here and the other there. If a cushion had only the advantage of dispensing with these nuisances they would be worth the extra trouble in making them; they are quickly put on and much pleasanter to work with, besides their value as a winter covering. These are simple matters worth thinking about in favour of the cushion. Any ordinary cushion will answer the above purpose, but the cushion I am writing about has several other and very important advantages. It is so arranged that all kinds of feeding can be made use of at any time when on the hive, and one can be done equally as well as another. To do this various feeders, or means of feeding, have to be made use of, but in the economical cushion feeder all is combined in one. Dry sugar, candy, or liquid, can be used with very little alteration in the feeder, and in supplying the bees with liquid food it can be given either fast or slow in the centre of the cushion. It is so contrived that those various means of feeding can be made use of, and close to the ordinary feeding-stage there is another smaller one to supply the bees with water, sweetened, in early spring, when it is too cold for the bees to leave their hives and seek it elsewhere. This water-stage is a hollow tube, 1½ in. inside, with a piece of perforated zinc at the bottom of it for the in-

verted bottle to stand on. Besides the above properties that this cushion and feeder contains, there is yet another of very great importance. We are told to cut holes through the combs to give the bees passage-way from one comb to another. This may be very good advice, but I, like many more, do not like the idea of damaging the combs. For this purpose some will recommend passages over the tops of the frames. If this will answer the purpose, there will be no need to damage the combs. Where this cushion is used, there is a passage-way provided along the centre of the under side of the cushion over the tops of the frames, 2½ in. broad by ⅜ in., which gives the bees passage-way to any part of the hive, and to their food and water. What I have stated is merely to show the various purposes that are here combined in one simple arrangement, and the value of it as a good winter covering. I think there is nothing that will answer so well when packed with chaff. I have said nothing how this cushion is made, but should any one wish to know more about it, and how it is made, I should be glad to explain this in a future number of the *B. B. J.*—R. PHILIPSON, *Keswick, Cumberland.*

FOUNDATION *versus* WORKED COMBS. (1381.)

[1390.] Mr. Saddler's strictures on the replies to Selected Query No. 2 are nothing if not satirical. These may safely be left for the parties interested to answer. Two points, however, are worth notice. 'For all practical purposes a sheet of foundation is superior to a comb' is Mr. Saddler's opinion. To refute this is easy. Given a stock in April in need of extension of brood-nest, it is incredible that a sheet of foundation can be so soon filled with eggs and brood, and with no more wear and tear of bee-life than a clean worker-comb; the facility of giving sealed or partially uncapped stores should also be taken into consideration. Later in the year, when the honey-flow is expected, the advantages of combs may not be so great, but are still considerably over plain foundation. Has Mr. Saddler ever tried doubling or tiering hives filled with clean comb for the production of extracted honey? If not, let him do so next season, and I venture to predict the result. It is important that the combs given for the latter purpose be *clean*. No old stores should be allowed; these given when honey is to be gathered frequently cause the stock to 'loaf' and do little when others fill freely; those with deep cells, *i.e.*, farther from centre to centre, are most most valuable, as they save handling.

To store combs, when preparing for winter, those that can be spared which contain much food are valuable for stimulation and building up colonies in spring, and should be put away securely in comb-boxes, or other receptacles mice-proof. Combs containing little had better be uncapped and given to the bees to clear, not too late in season, and may then be closely packed in hives that will tier; if the latter are dressed with carbolic acid and water it will tend to keep them in good condition.

Mr. Saddler, in his last paragraph, writes strongly, somewhat ignoring the hints lately given in the *Bee Journal* on courtesy in refuting what we consider errors in others; in turn I will ask if he has 'studied this wiring business,' to what extent, and with what result, more particularly in regard to the clause at the end of his article, p. 538? If he will do this, I will endeavour to show later on how there need be no danger apprehended from spare combs spreading foul brood, nor 'waste' in wiring frames of foundation.—JOHN EDEY, *St. Neots.*

QUERY.

[1391.] I should like to have the opinion of some of our leading bee-keepers on the following questions:—1. What number of frames are generally thought sufficient to prevent swarming, as I find that a double hive with twenty frames is not sufficient to keep them at home? This number of frames and a crate of 2-lb. sections did not give them sufficient room. I am now making a third tier to some of my hives. 2. What number of bees are there generally supposed to be in a three-storey hive, with thirty frames and well crowded with bees. 3. Would it not be better to make frames 1-in. broad, or a little over, for filling with drone-foundation to be filled with drone-comb for extracting purposes? As with the ordinary frame, when filled with drone-comb, it projects so far on each side of the frame; it is more liable to be damaged when in the extractor. A broader frame would protect it. Is there any objection to these broad frames?—R. P., *Keswick.*

BEES IN THE ARGENTINE REPUBLIC.

The bee abounds, and eight distinct species are recognised: The tiosimi, yaña, mosa mosa, mestiso quilaya, cani, quella, and alpamisqui. These Indian names are significant of the characteristics of these industrious and useful insects. The people of the country revel in the rich supplies they afford of a delicious and invigorating food. I ate of several of these varieties of honey, and preferred above all others that of the toisimi bee, known as the cardon honey; for it is only found in the trunk of that cactus. Expressed from the comb, it becomes after a few months perfectly white and granulated; and when eaten with bread or parched corn is considered delicious and sustaining. The Santiagamians prefer the cardon, but they also highly prize the lechignaña, the product of a bee which makes its hive in trees, and feeds upon the first spring flowers; for the flavour of the honey depends upon the food of the insect. The comb looks as if formed of the finest tissue paper, and has no admixture of wax. Myriads of bees exist in the Chaco, bordering the Salado; and large parties, provided with sacks and a provision of parched corn, cross over in the month of December to collect the produce of the wild hives. They take very good care, however, not to venture beyond the woods and plain immediately adjacent to the river; for with the Indians also honey is a staple article of food, and they prefer above all other varieties one that is found in that region—the eyrobáña, which is the deposit of a bee that feeds upon the fragrant ybirapaye. Forlorn, emaciated invalids join these parties, and, after an absence of a few weeks, return fat, well, and so changed that it is like the working of a miracle. This is ascribed to the properties of the wild honey, which, with parched corn, is for the time the only food of those engaged in these expeditions. A considerable quantity of wax is still sold to the village merchants, and finds its way to the neighbouring provinces; but the trade in this article must have diminished, for, according to Azara, ten thousand pounds were collected annually in Santiago before the Revolution. The process of preparing it for sale is simple enough. The comb is boiled in water, which is frequently stirred, and as the wax rises to the surface, a bunch of twigs is immersed, to which it adheres; it is then bleached by a daily exposure to the action of the sun for some weeks.—T. PAGE, *U.S.N., Voyage in the 'Waterwitch.'*

TOMTITS.—At the Astwood Bank Mutual Improvement Society's meeting last week, J. Hiam gave his annual chat on Natural History. Last year it was on Modern Bee-keeping. This year he took the subject of English birds found in the locality, and amongst curiosities for illustrations was a tomtit roosting in an old boot which has been used every winter for the last seven years. *Query:*—If tomtits kill bees, what is the best way to deal with them? Is *Parus major* the tomtit always referred to? At Redditch it is known as the 'Tom Collier.'

NOTICES TO CORRESPONDENTS & INQUIRERS.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

All queries forwarded will be attended to, and those only of personal interest will be answered in this column.

F. J. Pearson.—*Sour or rancid honey* is dangerous honey for bees, and, being foreign, is probably adulterated. We should reserve it until spring, and, after boiling and skimming, try the effect upon a single colony, when the bees are working vigorously, before venturing to use it in quantity as bee-food. We cannot suggest any other use for it.

Sweet-Tooth.—*Toffy or Barley-Sugar.*—Refuse honey is not suitable for making toffy or barley-sugar; these should be made from the best honey and refined sugar, the proportion of honey to the sugar being very small. Great care is to be taken with the manipulation, or the flavour of the honey will be altogether lost. If too much honey is used the candy will become sticky, and the result unsatisfactory.

W. G. Preece, jun.—*Sartori's Diagrams.*—The diagrams are published by L. Sartori, No. 6, Via Confalonieri, Milan, Italy. We do not know the price, but we presented a set to the British Bee-keepers' Association, which, when mounted, will be available for use.

An Inquirer.—*Zig-zag Entrances.*—Experience has shown that they do not allow of sufficient ventilation, and become choked with dead bees, and we have found that more bees are lost with their use than in those hives without them. Our advice is to open the entrances to six inches and either use plain slides or triangular blocks.

F. Jellico.—*Propolis.*—For removing propolis from glass, alcohol or benzine may be used. Root advises that glass, &c., can be cleaned most expeditiously by boiling it in a kettle of water with wood ashes.

R. R. Godfrey.—Thanks for the Grantham paper, but the report of the Grantham Honey Fair was inserted in previous week's issue.

G. Murrall.—*Hawthorn.*—The hawthorn, or may, is much frequented by bees both for honey and pollen. A buff-coloured pollen is obtained from it.

Maugerton.—*Lee's Frames and Sections.*—The principal improvement in these frames consists of a continuous dovetailed groove, and does away with nailing. In these the foundation is fixed at the time of putting the frame together. The top-rail of the frame is in two parts, with the dovetailed grooves on the under-side, which receive the ends of the bars tongued to fit these grooves. The lower ends of the bars have similar grooves and receive the bottom rail, which is also in two parts. For putting the frames together, a frame-block is required. The sections are on the same principle; full sheets of thin foundation are used, and are secured by pressing the half-rails together.

COWAN'S GUIDE BOOK.

A NEW EDITION of this Work will shortly be published. Intending Advertisers must forward Copies of their Advertisements during the present week.

Business Directory.

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Pearson, F., Stockton Heath, Warrington.

NOTICE.

The *British Bee Journal* is published by Kent & Co., 23 Paternoster Row, and may be obtained of all local Booksellers, and of the following Agents:—

ABBOTT, BROS., Southall, London, and Dublin.
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Editorial, Notices, &c.

CHRISTMAS GREETING.

The Editor joins with the compiler of 'Useful Hints' in a Christmas greeting to all subscribers and friends, and trusts that the festive season may prove a happy one to all of them.

OUR WAX IMPORTS AND EXPORTS.

In our last issue we presented our readers with the statistics of the imports and exports of honey, as given in the Annual Statement of the trade of the United Kingdom for the year 1886. We now proceed to extract from the same publication the amount and value of wax for the same year. The following tabular account specifies the countries from which wax is imported and the amount and value of the same :—

	cwts.	£
From Germany	5,937	14,527
„ France	919	4,831
„ Portugal	1,270	6,872
„ Italy	404	2,324
„ Morocco	2,163	10,699
„ Japan	3,576	10,299
„ United States of America	6,074	27,107
„ Chile	505	3,543
„ Brazil	2,375	6,616
„ Other Foreign Countries	987	4,186
Total from Foreign Countries	24,210	90,734
From West African Settlements	568	3,423
„ British Possessions in South Africa	912	4,750
„ Mauritius	1,836	8,663
„ British East Indies	945	5,719
„ Australasia	678	3,851
„ British West India Islands	1,160	7,106
„ Other British Possessions	517	2,131
Total from British Possessions	6,616	35,643
Total	30,826	126,377

There is considerable difficulty in affirming the quality of wax brought to this country. It requires great experience in detecting adulterated waxes; even among analysts there are fine gradations and nice distinctions between absolutely pure and commercially pure wax. Then there are many kinds of wax, vegetable, mineral, and insect, but we may generally deduce the quality of the wax from the value given. The mean of the value imported is 4*l.* 2*s.* per cwt. The wax from Chile fetches the highest price, 7*l.* per cwt., while that from Germany is only about 2*l.* 8*s.*

The following amounts are re-exported :—

	cwts.	£
To Russia	2,224	8,665
„ Germany	2,577	8,337
„ Holland	994	4,964
„ France	1,840	7,950
„ Other Foreign Countries	2,845	9,283
Total to Foreign Countries	10,480	39,199
To British Possessions	238	532
Total	10,718	39,731

This will leave for home consumption 20,108 cwts.; value 86,646*l.*

The total quantities of wax, with their value for the years 1884, 1885, and 1886, are,—

1884.	1885.	1886.
10,378 cwts.	10,328 cwts.	10,718 cwts.
36,467*l.*	36,706*l.*	39,731*l.*

The amount re-exported for the same years, and the value thereof, are,—

1884.	1885.	1886.
28,258 cwts.	38,295 cwts.	30,826 cwts.
105,813*l.*	149,253*l.*	126,377*l.*

There appears from the above to be a wide field for the production of wax. This article enters into the manufacture of numerous articles; at the Zurich exhibition there were shown twenty-two different articles in which wax was a constituent. There would therefore appear to be abundance of scope for energetic and enterprising private bee-keepers and Honey Companies to endeavour to overtake the importations of wax into this country.

FIXING FOUNDATION IN LEE'S FRAMES.

It is well known that foundation for brood frames, if used in full sheets, should be wired, otherwise it is liable to buckle. This we have long found to be the case, but it was not of very great importance until we, some years ago, introduced the plan of placing the frames 1¼ inches from centre to centre to prevent the production of drone brood. The combs would become wavy, so that in some places the cells were a little more and in

others a little less than the right depth. To avoid this unevenness wired foundation was used with success. There are many bee-keepers, however, who do not use wired foundation, and for these Mr. W. B. Carr has devised a simple method of fixing foundation in Lee's frames so that they may obtain perfectly level combs. The suggestion communicated to us by Mr. Carr consists of a slight horizontal centre bar across the frame. This, like the top and bottom bars of Lee's frames, is in two halves, and slides in a continuous dovetail groove like the others. The top, middle, and bottom bars are all made to grip the foundation, so that it is rigid instead of hanging loose as usually used. Mr. Carr has found by experience, when using a shallow frame of Lee's pattern, no appreciable harm came from allowing the bottom bar to grip the foundation. With the standard frame, a specimen of which Mr. Carr was good enough to send us, the depth of each division of foundation is only about 3½ inches, so that he does not fear any bulging. He does not anticipate any difficulty with the centre bar passing through where brood is thickest, because he has found that shallow frames in the upper of the two body boxes generally have the foundation of a row of cells along each face of bottom bar.

The specimen sent has the comb completely built out to the very bottom as well as the sides. With the centre bar slighter and projecting only ¼ inch from midrib, Mr. Carr feels certain the bees will embed the bar in the comb, so that there would be no interruption of cells so far as the surface went. The queen would pass the bar, and there would be only a row of broodless cells along the face of the bar. This way of fixing foundation would secure,—1, perfect immunity from breakdown when using full sheets for swarms; 2, combs as true as if built between dividers; 3, economy by using thinner foundation (say eight or nine sheets to the pound instead of six); 4, combs which will not break in extracting; 5, hives may safely be sent by rail fitted with full sheets of foundation; 6, those favouring winter passages may make pop-holes in foundation where they please.

We are pleased with the suggestion, and have no doubt but that Mr. Lee will have no difficulty in making frames with centre bars for trial. If successful, and we do not see why it should not be so, it would be a much more expeditious way of fixing foundation than wiring.

USEFUL HINTS.

A Christmas greeting to all our friends and readers. May the festive season prove to them the happiest on record—a season of family union, recording, indeed, the flight of time and the changes to which life here must ever be subject, but not on that account less happy, if only we have a good and sure hope of the great hereafter, when 'Time shall be no more.' At present the 'seasonable weather' of which we hear so much, when long hard frost and snow prevail, is conspicuous by its absence; but, seeing that old 'Father Christmas' often dons his hoary locks and icy beard, together with his brilliant crown-wreath of holly-berries, a few days before his actual advent, we elders may yet have, to our sorrow, a taste of his quality, and youth may rejoice in skimming over the frozen lakes and rolling in the fleecy snow-bank. On Christmas-day, a few years ago, we noticed a wasp enter one of our hives, and bees were flying freely, even carrying home occasional loads of pollen.

Weather.—Frequent storms of rain have prevailed of late, a low temperature, and nightly frosts. In our neighbourhood, the rainfall for November was 3·52 in., against 2·25 in. for the corresponding month of last year; the total rainfall, thus far, for the present year being 17·21 in., which is very far short of our annual average. During the last fortnight no opportunity of flight for our bees has occurred, and quiet and rest beneath warm quilts prevail, but soon, we trust, Sol's rays may exert their influence, and, the shortest day being already past, we shall soon be looking forward to spring flights.

Keeping Comb-honey.—Those who have kept carefully a few of their best sections, free from granulation or 'bleeding,' will be able to find a good market for such in London and our larger towns at the joyful Christmastide. What more beautiful or more suggestive of summer days than bright, transparent sections, artistically adorned with the crimson-berried holly, on the Christmas breakfast-table? We thank Mr. Simmins for his excellent letter (1385) on the price of honey being dependent, in a great measure, on the ability to keep it in a saleable condition, and so to place it upon the market when demand calls, instead of forcing a sale immediately on removal from the hives. These are views we have repeatedly expressed, both in 'Hints' and elsewhere, and we see no reason for qualifying them at present. With the exception of a few sections presented to friends, and those consumed in our own household, we have still on hand the whole of our last summer's sections, to which we have just given a careful inspection, without finding a single one granulated or 'bleeding,' and this has been accomplished by keeping them dark in a dry, warm atmosphere, and free from dust.

White Candy is made by boiling gently 10 lbs. of granulated cane sugar in three pints of water for about ten minutes, well stirring meanwhile. The pan is then placed in snow or iced water, and the thickened syrup stirred until it becomes a consolidated white mass, when it is rolled and patted into cakes. Given to bees above the frames, it is more easily consumed than ordinary candy, since it contains more water, but not enough to cause deliquescence.

Sholtz Candy, or Good's?—In *The Hive and Honey Bee* Mr. Langstroth gives the following recipe of the Rev. M. Sholtz, of Silesia (Europe), who recommends the candy so prepared as a substitute for sugar-candy in feeding bees:—'Take one pint of honey and 4 lbs. of very finely powdered lump-sugar; heat the honey, without adding water, and mix it with the sugar, working them together to a stiff, doughy mass. When thus thoroughly incorporated, cut it into slices or form it into cakes or lumps, and wrap them in a piece of coarse linen and place them in the frames. Thin slices enclosed in linen may be pushed down between the combs. The plasticity of this mass enables the apiarist to apply the food in any manner he may desire.' Surely this is none other than the well-known 'Good's Candy.'

Either of the above candies may be laid over the cluster or packed in wired frames and placed beside it.

Hive-building in this country, as a science, has certainly arrived at a pitch of excellence never reached before, thanks to the B. B. K. A. for all its fostering care. Cheap hives (many, alas! too cheap) are now considered a *sine qua non*: but we more than doubt whether a low-priced hive is really the cheapest in the end. We should like to see all hives double-walled, with spaces filled with a good non-conductive material in this

uncertain, changeable climate of ours. There is a very mistaken idea abroad that the spaces between the walls, when filled with air alone, form sufficient protection for the bees, and such spaces have been erroneously termed 'dead-air spaces,' the word 'dead' implying—if it has any meaning at all—that the air in these spaces has no communication with the external atmosphere, and is as good a non-conductor of heat as cork-dust, sawdust, or chaff. This we consider a great mistake. Even if these hollow walls were perfectly air-tight or hermetically sealed, owing to the great mobility of the confined air the heat would be carried quickly from one side of the cavities to the other, and so become dissipated. But in our experience the spaces never are air-tight, and therefore these so-called double-walled hives are in reality little, if any, better than those with good and substantial single walls. But when the spaces are filled with a light, porous material such as cork-dust, which is an excellent non-conductor, we obtain a hive which maintains a more equable temperature, both in summer and winter, than any other of which we have experience. We have had in use in our own apiary for some ten years hives of this description, and in them the bees always do well; indeed, we do not remember losing a single colony in any of these hives. The cork-dust, being well packed, prevents the circulation of air in the spaces, and affords perfect immunity from external changes of temperature.

Introducing Queens is an old and well-worn subject, but we cannot refrain from quoting a remark by the editor of the *American Apiculturist*, Mr. Alley, who for some thirty years has bred and introduced more queens, probably, than any man living. In an editorial note in the issue for this month he remarks: 'Bees that have been queenless a long time do not care for a queen, and will not readily accept one.' This dictum tallies so exactly with our own experience and with the well-known fact that *young* bees receive a queen more willingly than *old* ones, that a reference, we think, may well be made to it, without any desire to resuscitate the embittered controversy which raged in our columns on this subject some time ago.

Keep Geese, Keep Bees.—A curious fact is related in the *Moray Express* to the effect that 'a Morayshire farmer went to Forres and sold a goose for 7*s.* 6*d.* He then and there bought two calves for 6*s.*, returning home with 1*s.* 6*d.* in favour of the goose.' Hence, the remedy for agricultural depression is said to lie 'evidently in breeding geese!' To this Dr. Wingate Saul replies: 'At a weekly stock sale in Lancaster a good healthy calf was recently sold for the tenth part of the value of the goose—viz., 9*d.*; and why? Because such is the present deplorable condition of agriculture, at least as far as stock-raising goes, that if you let a farm rent-free, and supplied the occupier with calves at nine farthings a-piece, he could not rear them without losing money.' Alas! poor farmers, between *calves* and *geese*, to what straits are ye come? We bee-keepers do not confess to being either 'Essex calves' or 'geese,' and we unhesitatingly invite you to migrate into Essex, and to take up some of the uncultivated farms, rent-free, and there to set up your hives. Read Mr. Simmins' *Modern Bee Farm* where you will find it stated that 'the bee-keeper who is also a farmer has every advantage, and can make profits both ways.' Mr. Simmins well advises ambitious, unfledged hive-makers to pause before investing largely in advertising their wares, or otherwise their efforts may 'end in smoke.' This advice reminds us of an aged Australian friend—a cleric, but a 'Johnian punster'—who, when asked by some colonists whether he thought tobacco cultivation in that fine climate would prove remunerative, gave a doubtful answer, but added that 'of one thing he felt quite certain, viz., that, whether successful or not, it would assuredly "end in smoke."' But we do think that bee-farms established on our uncultivated lands, and conducted on enlightened modern principles, would offer more prospects of a dividend than either *calves* or *geese:* therefore, we say to farmers, as the good old bishop said to his poverty-stricken clergy, 'Keep bees! keep bees!' We have heard the objection raised to Mr. Gladstone's advice to distressed farmers 'to grow strawberries,' that if all farmers were to follow it, the country—and, indeed, the world—would soon be 'over-strawberried.' And objections will no doubt be made, that if all farmers take to producing honey the world will soon be over-honeyed. But that time has not come yet, and when it does the great millennium of peace and plenty will have arrived also, and, in a world so full of sweetness, that glorious prophecy will have been fulfilled, that 'the wolf shall dwell with the lamb, and the leopard shall lie down with the kid; and the calf and the young lion and the fatling together, and a little child shall lead them.' Then, indeed, we shall no longer learn war, 'neither shall nation lift up the sword against nation, but they shall beat their swords into ploughshares and their spears into pruning-hooks.'

Our Problem and its Solutions.—Judging from the several solutions received, our problem appears to to have puzzled 'seniors' almost more than 'juniors.' To the names of those given in our last, as sending correct answers, we have to add—R. Ballantine, T. Rawson, and A. Wilson, all of whom were too late for competition. We give the solution of the former, as well worthy of a place in our columns:—

If six tomtits six minutes take
To tear six bees asunder,
Each bird must then six minutes work
To gain his share of plunder;
Then why should not *twelve* fierce tomtits
One hundred bees devour
In fifty minutes all complete?
Thus, ten would take an hour.

R. Ballantine, age fourteen.

We also take the liberty of publishing one of the 'rejected addresses,' that of a senior, marked, 'Not for competition:'—

My wife and I, with our four little T's,
In minutes six kill half-a-dozen bees;
One bee apiece per minute is the pace
At which we thin the honey-making race;
We two alone then, schoolmasters say,
In fifty minutes should a hundred slay.

Senior.

Unfortunately, 'one bee apiece per minute' is *not* the pace. Does not our correspondent see that if it were the six tits would kill *thirty-six* bees in six minutes? The 'rule of common sense' would teach us that, by the terms of the question, six tits kill *one* bee per minute. But it is required that *two* bees be killed per minute (the given rate being one hundred bees in fifty minutes). *Therefore,* the pace being *doubled,* the number of tits must also be *doubled,* and,—

'By very simple logic, *and not far to delve,*
We quickly discover the correct number Twelve.'

Altogether we have received twenty answers to our question, of which ten are right and ten wrong. The greater part of our junior competitors have given neat solutions by the rules of compound proportion, stating the 'antecedents' and 'consequents' in proper order, and bringing out the answer correctly. We thank all for their efforts, and trusting that the unsuccessful will keep up their courage, and 'Try, try again' on the next occasion, when, doubtless, their perseverance will be rewarded.

We have given orders for the respective prizes to be forwarded to their destination as early as possible.

MY BEES

By Mrs. Reginald Bray,
Author of 'Family Feats,' 'Ten of Them,' 'We Four,' &c.

(*Continued from page* 546.)

Chapter VI.—Foul Brood.

When I returned to Heathbourne, my hives were all shut up up for the winter. It was an inexpressible comfort to feel that Watson would have looked after their welfare as carefully as I had done. My great anxiety over my Shere hive always was that there was no one who took a special interest and delight in it.

When March came round I was very careful not to put my supers on too soon. The spring as it always has been ever since I began to keep bees, was very late. Not until the end of May did I put them on, and the bees did not show the slightest signs of going up into them.

In the middle of June we had some bitterly cold weather. We were quite thankful indoors to sit over fires, and the bees did little or no work outside. I read that bee-keepers were removing their supers, and had commenced feeding again.

I wished to do so, but I had not recovered my nerve entirely, and I had been stung several times in putting it on. One little girl had also been severely stung. Thinking that it would be quite safe to look over the wall where the bees were she mounted her stilts which made her over eight foot high, and gracefully leaning on the top of the wall she watched my operations.

Alas! the bees flew straight up, and she had to beat an ignominious retreat, stilts and all, having been stung six times. However, she has plenty of pluck, and in regard for my anxious feelings she assured me that she did not mind. I hope she spoke the truth.

I did not feel as happy about my bees as usual, on the hive which had supers, and which I shall call number I, the bees, as I said, would not go up in them. In number 2 the bees did not seem at all strong, indeed they behaved in a very strange manner. They dawdled listlessly in and out of the entrance, stopped to gossip with each other as though they had no particular object or aim in life.

I was very unhappy, my merry, buzzing bees, these wretched, dejected-looking creatures. My heart misgave me that the queen was dead! I opened the hive and examined it. No trace, alas! of a queen, only a queen-cell in process of making, but not yet sealed over, so it would be some time before her majesty would come, and in the meantime my bees were dwindling away. I wrung my hands in despair, sat for a short time in silent agony, then rushed to my writing-table and wrote a telegram to Messrs. Neighbour for a new queen.

The next day she arrived, ignominiously for her majesty, in the pockets of one of their men who was going to introduce her for me to her new subjects. This is not such a very easy matter. Though the bees are utterly lost without a queen, they are by no means ready to welcome a new one.

If a strange queen were to be suddenly introduced into a queenless hive, the bees would at once attack and destroy her. The easiest way is to put the queen in a small wired cage which is made for the purpose. This is fixed into the combs, and the bees thus get accustomed to her and feed her through the wires, after which she may be released. This the expert proceeded to do.

Having put the queen into the cage with a card placed beneath it he selected the centre comb with brood, and placing the cage on it pressed it down, and then closed up the hive. He told us that in about twenty-four hours we might remove the cage, and watch and see if the bees received the queen kindly; if they should attack her and seize her by the legs or wings I must cage her again and release her the next day. He cut out the queen-cell which they had commenced, as if the bees have no chance of raising another, they are more likely to take to the new queen.

Oh dear! how I hoped that the bees would receive the queen well when I released her! I attended carefully to my instructions, and said 'Yes, yes!' as if it were the simplest thing in the world to me to catch the queen and recage her. Inwardly I intended to leave her some hours longer than he said to make sure that she would be welcomed before I let her go. I have heard since that the longer the bees have been without a queen the longer it is necessary to keep the queen caged.

The next day all my plans were changed. That afternoon a swarm of bees was seen flying through the air at their own sweet will: nobody knew whence they came or whom they belonged to. Now, whether it were that same swarm or not I cannot say, but Watson was out that afternoon and he found a man in great distress with a swarm of bees in his garden. He did not dare to touch them and he did not know how to get rid of them. As a last resource he offered them to Watson for five shillings. This was a chance, indeed, for my weak hive; a whole swarm and queen to add to it, instead of my poor solitary caged queen. Watson hurried home and told me. I closed at once with the bargain, and he went off with a straw skep to hive them. We did not unite them to our stock that night, as I should like to have done, because of the imprisoned queen. I wrote by post to ask Messrs. Neighbour to take back the queen, and explained the circumstances. This they did very civilly, and the following evening the queen was taken out and the swarm put into the hive.

After this I hoped that all would go on well, and for a time things looked better and the bees worked well. Hive No. 2 was fairly flourishing, though no chance of any super honey. In No. 1 the bees still obstinately refused to go up into the supers, and, what was worse, they seemed dwindling. Sometimes I thought I perceived a peculiar odour when I was close to the hives. I asked N. anxiously, but she said that she noticed nothing. Watson also did not think there was any, so I earnestly trusted that my nose deceived me, though horrid thoughts would come into my mind of that gruesome enemy to bees 'foul brood.' The worst was that all my neighbours' bees had died off and they had not a single bee remaining. The hives were empty, desolate places.

Surely such a terrible misfortune as 'foul brood' was not going to overtake me! I continually read about it in the *Bee Journal*. Some correspondents wrote such ghastly accounts: how it was utterly incurable, that there was nothing to be done but to destroy your bees, hives, and all, and to commence bee-keeping afresh. I would not believe in the possibility of such evil. I did not know of any in the neighbourhood. The season had been so late; the weather had been so cold. It was no wonder that the bees were not very flourishing. Why should I have such conceit as to think that my nose was any better than that of other people?

It was now nearly the end of July, and I had given up hopes of any honey this season. It was rather hard, but I consoled myself by thinking that I could not expect to have forty pounds of honey off one hive every summer, and I had little doubt that the immense quantities of honey which I read of being taken off hives in a good season were very much exaggerated. Anyhow, this summer was pronounced by the *Bee Journal* to be one of the worst that had been known for forty years. One morning Watson told me that he had heard of a lot of bees that were to be had very cheap at an estate that was going to be sold in the neighbourhood. I could not resist the chance of a bargain, and sent him over to examine the hives. He came back and reported that they looked very strong indeed. The hives felt very heavy; there seemed to be lots of bees, and on some of

them there were supers with honey. They consisted of four straw skeps, two old-fashioned bar-frames, and one very remarkable one that had something the appearance of a Chinese Pagoda. That the hives were old-fashioned I did not mind, because if I liked we could unite them with my bees, who were getting 'small by degrees and beautifully less.' I went in to ask Mrs. Graham whether she would not like to join in this chance of getting bees at a bargain, and she agreed to take three straw hives.

After some days of anxious waiting and a little bargaining had been gone through all was settled. The money, which averaged about 10*s.* a hive, was paid. The hives were mine and there was nothing now to be done but to fetch them. The evenings were now so long that it was of very little use thinking of moving them till about nine o'clock, as the bees would not have all gone home.

The place was about two miles or so off, and about 8.30 Watson started off with the coachman to drive the cart and the boy Tom to help to tie up and move the hives. He also took some pieces of stuff to stop up the entrances so as to prevent the bees coming out. I knew he could not be back before ten o'clock, as it would take a long time to tie up all the hives. Accordingly I waited fairly patiently until that hour, then I went out and walked anxiously up and down the lane.

I waited and waited, but it was nearly half past ten before he arrived, and I had begun to feel anxious lest any misfortune had occurred, when I heard the joyful sound of the footsteps of the horse in the silence of the summer night. Presently the cart loomed in the distance, the hives in their white sheets looking like so many ghosts. 'Oh, you have got them,' I exclaimed eagerly as he drew up at the stable entrance.

'Yes, ma'am, but a rare job we had. There was actually a man coming to take off the supers. We were only just in time. He arrived a few minutes after we did, and I just told him the hives were ours and he had nothing to do with them.'

'What a shame!' I exclaimed, thinking of the risk we had run of losing what would probably be the only honey I should have this season.

'Well,' said Watson, 'it seems the owner has never cared about the bees, and this man has been in the habit of taking it every summer. He was civil enough when I explained how it was, but the worst is that he had been in the morning and loosened all the supers, so we had a great piece of work to tie them fast, and I am afraid as it is a good many bees have got out in the sheets. The bar-frames are all right, as the supers are under the covers, but it is the straw skeps that I am afraid of, as they have only a box of sections over the hole at the top. I drew near to the cart, and I heard a sound of the most infuriated buzzing that ever met my ears. The bees had indeed got out of the hole at the top, and the sheets round were simply bulged out with bees who had crowded out, and could not find their way back into the hive. I cautiously placed my hand on the sheet but as hastily withdrew it, for the buzzing, wriggling mass had a most uncomfortable feel, besides which there was a good chance of a sting through the sheet.'

'Well, it is quite plain that we cannot take the sheets off these to-night,' I said. 'We must leave them as they are until the morning, and perhaps the bees will find their way back into the hive when they are left quiet.'

So we merely placed the hives on their stands for the night. Three of the straw skeps were put in Mrs. Graham's bee-house, and the rest in our kitchen garden by the side of the others. We undid the sheets of all that we could, but left the entrances closed up till the morning.

My thoughts were full of bees that night. Whenever I closed my eyes I seemed to see myriads of bees, whilst the buzzing still sounded in my ears.

The mornings were very, very light now, and at about 5.30 I crept out of bed, put on a few clothes, and my dressing-gown, and covering all deficiencies with a fur cloak and a hat, cautiously unfastened the drawing-room window, which opened on the lawn, and hurried off to my hives.

There is no such beauty as the beauty of an early morning; the heavy dew still upon the grass, and the shimmer of the sun upon the dew-drops.

When I turned the corner by the wall there was Watson equally anxious as myself. He could not rest, and was even there before me. He had taken the stoppings out of the hives from which the sheets had been taken, and the bees were working busily and quietly as though they had never been disturbed.

Then we turned to those other awful hives in Mrs. Graham's bee-house. There they stood, a ghastly row, enveloped in their white drapery, still bulging out with bees, which seemed more furious than ever. Of course they had not been able to get back into the hive as I had hoped, for the entrance had been stopped up before the sheets were tied on.

We stood and gazed in silent dismay. I simply dared not undo those sheets. Neither Watson nor I are very deficient in courage, but it required the courage of a volunteer of the 'Forlorn Hope' to unfasten and turn back the sheets of those three hives, and let loose a multitude of angry demons upon us. It would really be at the risk of our lives. Besides, then we should have to take the stopping out of the entrances before the bees could get back into the hives.

I should like to know what some of the experts would have done when face to face with such an emergency. For my part I would as soon face a mad bull. At least there would be only *one* enemy to cope with, and here we had hundreds and thousands, for the hives were very strong.

Necessity is a mother of invention. I looked at those sheets, they were only twill calico, my very commonest. Something must be sacrificed, so I gave a little gasp, and said, 'I shall cut a hole in the sheets for the bees to come out.'

Watson agreed that it was the only thing to be done, so I returned to the house to complete my toilette, and to don veil and gloves, for I had no intention of being stung if I could help it.

Whilst I was gone Watson prepared the smoker, and being anxious to quiet them as much as possible, we put a little of the tobacco-paper which is used for fumigating greenhouses in the smoker. Then I took the scissors, and with as much care as I could take to avoid snipping bees in half, I cut two slips at right angles to each other in the sheet just opposite the entrance.

The bees then began to hurry out, but our work was not yet done, for we had to work about with a bit of stick to pull out the bits of stuff with which the entrances were stopped up. This was no easy matter, for it had to be done by feeling.

Then, when we had cleared the entrances, we had to arrange little slips of wood as bridges from the hole in the sheets to the entrances of the hives, otherwise the bees would not have been able to find their way back. It was done at last, and actually without a sting. Our plan was quite successful, and it was an immense relief to see the bees hurrying out of the sheets and then quietly returning to enter the hives in the proper manner.

It was now breakfast time, and I was obliged to tear myself away, feeling I had done a very hard morning's work.

It took a long time for the bees to liberate themselves, but at last the bees of two hives were all released. We were able to unite and turn back the sheets, though we did not remove them for a day, as we did not want to have to lift up the hives.

The third hive was not in a satisfactory state, the bees

did not seem able to get back into the hive, and they flew about in an aimless and unhappy manner. At last I could bear it no longer, so I cautiously unfastened the sheet, and gently laid it down. Alas! the bees were quiet enough now. I ventured to take up the hive and look in at the bottom. Oh, sad and piteous sight! the combs had all fallen down in the move, and there was a mass of dead and crushed bees that would have made a heart of stone ache!

We sadly took away that hive, picked out the few survivors, and united them with one of the other hives.

It was a crushing lesson to us never again to undertake a move without carefully attending to the rules for moving laid down in Mr. Cowan's book.

After a few days had gone by I began to think whether it would not be as well to ask Messrs. Neighbour to send down an expert to overhaul my hives, and if he thought well to unite some of them with my two original hives, which daily grew weaker and weaker. Accordingly I arranged with them that Mr. Marshall, of whose manipulation I cannot speak too highly, was to come down and examine my hives.

I hastily sent a telegram to a bee friend living in London to come down and witness the operations. This friend had kept bees for some time very successfully on a balcony in Kensington. They were a great interest and amusement, though occasionally they gave her an alarm lest they should swarm into any of her neighbours' houses, and more than once she had to send hastily to Messrs. Neighbour to come and prevent such a dire catastrophe.

She arrived soon after lunch, bringing a butterfly-net to act as a veil. It was not a very suitable article, and I had to tie it round to prevent the bees crawling up underneath. We waited for some little time, and then we saw Mr. Marshall coming across the lawn.

I led the way somewhat triumphantly to the corner where the six hives stood,—an imposing sight. My two I knew were weak, but the new ones were undoubtedly as strong as strong could be.

We turned the corner, and Mr. Marshall gave a curious glance at those hives which, as I have before said, were of a somewhat remarkable make, especially the Chinese pagoda.

Something in that look made my heart stand still, and an ominous foreboding crept over me. I do not *know* whether the sun went in, and the sky became overclouded, but I almost think it did.

'I know those hives,' was his somewhat laconic remark.

'Really!' I said, in a cheerful tone, though feeling inwardly that something dreadful was coming.

'Why, I went down to look at them to see if they would suit us, but we would not have had them at a gift.'

Yes, there was no doubt the whole brightness of the day was gone!

'What—what?' I managed to gasp, feeling like the lady of the nursery rhyme, 'Speak, speak, or my heart will break.'

'FOUL BROOD!' said he.

Then there was a dead silence. For a moment I could not speak, but determined that no one should guess my feelings, led him as cheerfully as I could to my hives No. 1 and No. 2. I almost hoped now that the enemy was there also, because it would be almost too dreadful to think that I should have introduced that dire disease into a healthy stock.

He took off the lids one by one, he looked in, he took a sniff at each, whilst 'I stood silent, dumb, with anguish like the wretchedest of (wo)men.' Then he replaced them, and the answer I anticipated came, 'Reeking with foul brood.'

'I suppose I had better destroy the whole lot,' said I, every dismal story rushing through my brain. 'There is no cure: is there?'

'No cure!' exclaimed Mr. Marshall. 'Destroy all these hives! Not a bit of it; we'll have them all cured by next spring.'

If ever I blessed any one in the course of my life, I blessed Mr. Marshall for those words. My spirits, which had gone below zero, rushed up with a bound, and I was able to stand and endure it whilst he gave us a lecture upon 'foul brood,' and showed me how I ought to have known it.

Very useful and very instructive that lecture was, but it would have been a thousand times more interesting if my own beloved bees had not formed the subject for it.

Foul brood is a disease which affects the brood. It is caused by a bacillus. You can easily tell it, for the caps of the sealed brood are indented, and tiny holes seen in them. If you open the cells, you find the young brood dead, and in a sticky, discoloured mass, truly a sickening sight, whilst the odour which I had perceived is very unpleasant. Of course the brood all dying off, the bees in the hive dwindle away, and the mature bees are themselves infected by it. It is terribly infectious, and as an infected hive becomes very weak it is often robbed by stranger bees, who may thus carry the disease into the whole neighbourhood.

All honour be due to Mr. Cheshire, who has invented a cure.

But for the present I am not going to give the account of that, as I only used it later, and I will at present continue the history of my experiences exactly as they occurred.

'Lumps of camphor,' continued Mr. Marshall, 'will effect a cure. It disinfects the hive, prevents the foul brood spreading, the putrid grubs gradually dry up, and then the bees can clean out the cells.'

My two hives were decidedly weak, but the others were so very strong that their chance of recovery was great. We hastily sent to the chemist for some lump camphor, and he placed good-sized bits of it between all the combs, and told us that when this had dissolved, as camphor will do exposed to the air, to put in some more, and to keep on doing this till the hives were shut up for the winter.

My two hives required feeding at once, but the new hives were all so filled with honey that they did not require any feeding at all, nor did the two which were in Mrs. Graham's bee-house, which were also infected in the same way, but which fortunately were extremely strong stocks.

He then took off the honey in the supers. This also was rather a disappointment, as in several of the supers there was only a little work done, and altogether I only got about 10 lbs.

I did not care much about doing that little sum: 3*l.* 10*s.* for eight hives of diseased bees, and 10 lbs. of honey. Bee-keepers, pity me!

(*To be continued.*)

Foreign.

FRANCE.

The general Congress will be held at the Palais de l'Industrie of Paris, between the 23rd January and the 8th of February next.

The programme relating to the honey and wax sections is very similar to the one issued last year. Honey will be divided into four groups, as follows:—Honey in the comb, run honey from the heather districts, run honey from artificial prairies, and run honey from mountainous districts.

No provision has been made for honey from the plains of Brittany.

Exhibitors will be expected to declare the number of their hives and the amount of their harvest.

No lots under 4 kilos weight will be entitled to compete.

In the honey group, one gold, four silver, and six bronze medals will be placed at the disposal of the Jury.

Wax will be divided into two sections, viz., one for lots not under 4 kilos and not exceeding 25 kilos, and the other for larger quantities; but no exhibitor will be allowed to compete in both sections. The Jury will make their awards on the 26th January, and those allotted to the wax sections will probably consist of one gold, two silver, and five bronze medals. The whole of these prizes will only be awarded in the event of the Jury considering that they are justified by the merit of the exhibits.

Application for admission must be made before the 1st of January next. Printed forms may be had from the Ministry of Agriculture.

Notice is also given that bee-keepers intending to contribute to the great Exhibition of 1889, must send in their application before February next.

The *Apiculteur* of Paris has now completed its thirty-first year of existence.

CANADA.

The report of the quarterly meeting of the British Bee-keepers' Association, October 19th, at which Mr. Cowan gave a description of his trip amongst bee-keepers of America, is no doubt read with interest by all, by those even in America, for few of us have made, even in our own country, so extensive a tour, and one which would be so entertaining, and even instructive. We all have a desire, however, to visit other bee-keepers, and spend a few pleasant hours, or even days, in conversing with them upon the points which we know they have made a special study of; next to having been there ourselves is to hear from those who have been.

There are few, if any, Canadian bee-keepers who have visited the apiary of Captain Hetherington; and how well such a visit would repay an apiarist who depends upon the production of honey for a living.

I see the question of yield in an apiary was brought up. We do not think that England or Britain can take the palm from Canada or America, especially the northern part of America, upon that score. This year, bad as the season has been, I secured 270lbs. of extracted honey from one colony, with sufficient honey to winter on, and no increase. Another year I secured an average of 225lbs., increase from three colonies to ten. Last year a young man who purchased a colony from me took 230lbs. of honey, and increased to three, with enough to winter on. I hear a lady at St. Mary's, in an apiary of over fifty colonies, secured an average yield of 225lbs.

Volume i. page 6, *American Apiculturist*, L. C. Root writes: In 1870 he took 361 lbs. from a single colony; since that he has taken 484 lbs. from one stock. In 1881 he took from an apiary of forty colonies 9727 lbs., a little over 243 lbs. to the hive on an average. I have heard of yields from a single colony as high as 900 lbs., but the reports came from sources less satisfactory to myself, and then we place less value upon the yield from a single colony; with us it is an established saying,—one, too, which appears to be borne out in practical experience, that one or a few colonies will give more honey per colony than a larger apiary.

Canada is the land of my adoption. This and justice will not permit me to pass unchallenged the expression or thought that we do not take—equal to England—advantage of 'Nature's gifts.' I am pleased Mr. Cowan did not see any skeps in America. We have the box hives, which are about the same as your straw skeps. In Ontario they are becoming rare; in the province of Quebec, I regret to say, they are rather plentiful, decidedly in the majority; but it would scarcely be just to say we had not reached that stage of advancement to know of the superiority of the moveable frame-hive. I think Mr. Baldwin is correct in the statement that England has nothing to fear from American competition.

The question is before us in America, 'Can the specialist produce the cheapest honey, or one who combines bee-keeping with other pursuits?' I am satisfied that bee-keeping can be combined with many pursuits to advantage. This can be done in such a way that the wages for a year's work, which the specialist has to add to his cost of honey, does not require to be added by those bee-keepers, and if either has to go to the wall the specialist in America will have to do so. They cannot afford to undersell you after freight and other expenses are taken into consideration; nor do Canadians consider it policy to attempt to undersell British honey. We rather take this view of it. The proper introduction of our honey will increase the demand for honey, and then let the difference in the honey of each country, push in selling, diversity of tastes, and any other differences, give each their market.—R. F. Holtermann, *Brantford, Ont.*

Reviews.

Illustriertes Lehrbuch der Bienenzucht, by J. G. Bessler. Published by W. Kohlhammer, Stuttgard. This is an instructive book for beginners, and is not intended to come in competition with more expensive, advanced, or complete works on the subject of bees and bee-keeping. The author has gleaned the best of both theory and practice, and to avoid verbosity has illustrated it with 137 engravings. He commences by giving a brief history of bee-keeping from the earliest times, and introduces some very amusing pictures showing how bees were in those days kept in the trunks of trees, and the manner of taking the honey. The armour the ancients wore to protect themselves against the stings of bees contrasts strangely with the simple veil of to-day. Just sufficient of the natural history of the bee is touched upon to give an idea of its structure without wearying the bee-keeper with the science. Bee-life within the hive is next entered into, and in chapter 6 the enemies of bees are illustrated and described. The description and treatment of disease are not omitted, and in the practical part, to which the largest portion of the volume is devoted, numerous hives and appliances used both in Germany and in other countries are described and figured. One of the most interesting chapters is that devoted to bee-flora, and the author has adopted the system advocated and carried out by M. Kramer of Zurich in giving the values to the different flowers as honey, pollen, and propolis producers. The list contains 278 different varieties, many of which do not and would not find places in our lists. We are pleased to find that many of the plants yield as well with us as they do in Germany, and some have no values placed against them, as the author does not consider them of sufficient importance as bee flowers. There are others from which the bees only get honey after piercing the corollas, such as, for instance, *Lonicera caprifolium*, but here we find the author gives this plant a much higher honey value than we do. The table also gives the times of flowering of these plants. This volume is written in simple language, and will be found useful, more especially, as the author says in the preface, that it is published at a low price to bring it within the reach of all. M. Bessler is already known as the author of *Geschichte der Bienenzucht*, which we reviewed on page 180 of the *British Bee Journal* for 1886.

We have also received from M. Bessler a photograph, 16 in. by 12 in., containing the portraits of nearly 250

of the leading bee-keepers. These are all medallion portraits neatly arranged within an oval frame, tastefully and artistically decorated at the corners. Among the portraits we easily recognise, notwithstanding their small size, the likenesses of many of those who have done so much for the science of bee-keeping, and who have been the means of raising it to its present position as an industry.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The Editor of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. Huckle, *Kings Langley, Herts (see 2nd page of Advertisements).*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

COMB IN SECTIONS: WHOLE SHEETS OF FOUNDATION AND STARTERS.

[1392.] All advanced bee-keepers are fully cognisant of the utility of having a good supply of sections, filled or partially filled with comb, ready for the coming season. These sections are, as a rule, the residue of the previous year's harvest. When the racks are removed from off the hives, preparatory to putting the bees into winter quarters, quite a number of the sections will be found to be partially filled, mostly, though not always, with honey of poor quality. This is extracted, the sections returned to the hives for the bees to clear out. They are then carefully packed away, and brought out again when the time has arrived for the racks to be placed upon the hives. The plan of 'tiering up,' which is quite a modern—even in the bee world where everything is modern—system of obtaining honey, gives a much larger number of these unfinished sections than the plan before adopted of using but one rack, removing the full sections and replacing with empties; hence at the commencement of the following season, when the first rack is placed on the hive, the bee-keeper will most likely fill this with these partially filled sections, with the result of having a very irregular lot for his first crop instead of being the best. The plan of putting some partially built combs in the first rack placed on a hive at the commencement of the harvest is greatly to be commended, its advantages being very evident, but only inasmuch as it acts as an inducement for the bees to 'go up' in the supers—nothing more. This inducement can be easily proved by filling some sections with comb and others with foundation, and giving them to the bees; those filled with comb will be rapidly occupied, while for some time little attention is paid to the foundation. We find that when the bees once take possession of the racks they will never leave them again during the honey flow, providing no swarming takes place or disease thins their numbers. If the racks are occupied, honey only, as a rule, will be stored in them, as a consequence more room is given the queen for her to fill with eggs. This gives a great impetus to the colony, and, unless more space is given, swarming will take place. This large increase is just what is wanted. The hive is enlarged by giving an empty rack of sections, swarming is retarded, and we then obtain a greater amount of honey in the supers. It is my purpose to call particular attention not to supering and its various methods, but more particularly to the fact of sections being badly finished where partially filled ones from the previous year are used, and the means by which this can be avoided. This only applies to those sections which have been about three-quarters to wholly filled with comb, not to those which have the foundation (starter) just started, as little or no difference will be perceived in the finish of these. We shall find that the side cells of the offending sections are scarcely touched, which gives the finished section quite a convex surface. There is little doubt but that this arises from ripe honey being taken from the combs below, and stored direct into the sections. Being ripe this is sealed over as soon as the cell is full, the bees not elongating the same as they do in newly built combs, and a little later on in the season when unripe honey is being stored. In these cases the comb-builders keep adding to the depth of the cells instead of sealing them over, the honey not then being in a fit condition. If we can once start them on to honey-comb building they will continue to add to the depth of cells until the opposing comb or separator prevents any further addition. They are then—the honey being ripe—sealed over. Where a comb is provided with cells much below the usual depth of honey-comb, and there being no opposing comb or separator, the bees will at once add to it; and as they have once commenced in earnest so will they continue. All things being in a normal condition, therefore our plan is evident. All sections which are full of irregularly (convex) formed combs should be reduced until the cells are less than half an inch in depth, by simply shaving them with a sharp, warm knife. If this is done the bees will finish them off equally as well as with foundation. It is a deal the best plan to place but two or three of such sections in a rack, the rest to be made up of those having only foundation.

The superior finish of sections where whole sheets of foundation are used is very marked. Especially is this so where the foundation fits the section exactly except at bottom, the bottom being fitted with an upright very narrow strip ($\frac{1}{4}$ in.) almost meeting the larger upper piece, a plan first introduced by Mr. Corneil, of Canada, but in this case—in fact, as in all—the hive must be perfectly level, so that the upper portion of foundation hangs perfectly true to the lower.

I have experienced during the past season a great difficulty in securing whole sheets of foundation perfectly true in the section, there being more or less 'buckling' just where the sheets touch the sides, which to obtain finely finished sections must not occur. I have overcome this failing by using a machine which by the almost momentary pressure of a lever affixes the foundation with molten wax firmly and truly in position, a description of which I will give in a future letter. By fixing the foundation with molten wax quite a quantity of it is saved in comparison to other methods, such as 'mashing' about a quarter of an inch of the edge into the wood, or fixing it in a slit of the top bar.

Many prefer starters only in the sections; I do when I have to eat them myself, in fact, when running a few hives just for home consumption, I recommend as little foundation to be used in the supers as possible; just a start that the combs may not get into a muddle. With the machine before alluded to this start can be placed in the section without the use of any foundation whatever. What is nicer than eating a section where the necessity of disengaging a sticky lump of wax is avoided? and this most assuredly will be the case in most instances where whole sheets are used, no matter what make or thickness of the foundation. The plan of using white bees-(?) wax, so much in vogue now, does not alter this condition of things, as natural coloured *bees*-wax is made as thin, and even thinner, although, on account of its colour, it does not appear to be so.

There is no doubt that the public taste (optical) for a finely finished section will gain the ascendancy, and whole sheets of foundation will have to be used where a market is to be made, but this will not prevent the home consumer from indulging in an article that can be eaten without the above disadvantage.—W. B. Webster.

IN THE HUT.

'At every trifle, scorn to take offence;
That shows great pride and little sense:
Good nature and good sense will always join;
To err is human, to forgive Divine!'

[1393.] The prime minister recently put the clôture on the McN——s, 'Amateur Expert,' and 'X-Tractor.' High time too (perhaps a shade tardy), but I should have first liked the opportunity—I now take it—of expressing my regret, now the affair is over, if anything has been said in the 'hut' which has caused pain or anger to anyone; acerbity and ill-natured rancour is no part of the huttites' creed. Good temper and mutual edification are our cardinal principles. I may say, however, that for the future such criticisms as 'the hut' comes in for, and is allowed to appear in these columns, will pass unheeded and unanswered: so any one can have a shot at it and its inmates who likes. If no reply be returned, perhaps they may rest assured it is not for want of ammunition.

We should like you to give us your idea on the stridulation theory of Cheshire. He dispenses entirely with the trachea and spiracles as accounting for the piping of queens. If he be right, the croaking of drones will be accounted for by the same means. I have not a queen accessible at the moment. The quotation is:—'No other part of the body, so far as I have been able to discover, suggests, by its conformation, that it could be employed in stridulating, save the joint of the collar (the junction of the pro and mesathorax), and here eight or nine delicate line indentations occur; and possibly the tremor of the abdomen may be accompanied by a rasping of these loosely-articulated parts, so as to increase the sound.'—(p. 158.) Still, it seems there are parts we have missed; at least, I have with my paltry quarter-inch, and if too minute for that stridulant tones would not be very loud, I think. I will have a search on a dried queen, I cannot form an opinion in 'the hut,' yet methinks we should hear her majesty's tones oftener than on the eve of casts issuing, and also that the chitine of the rings on the reflying princess's thorax would be scarcely hard and rasp enough to be audible.

Some of us who are beginning to fail in our natural masticatory machinery well know the peculiar twinge given to the nerves at the basis of our teeth by the intense sweetness and coldness of certain kinds of honey. If a recent statement be true, a minute quantity of formic acid ejected into the honey would accentuate the pain. I do not, however, for one, believe in the idea 'that the bee pierces the cell cap and saws into it with its sting, and, inserting the latter, injects a small supply of poison into the honey.' I think the acid would prevent granulation, for is it not in order to convert our cane-sugar, in syrup-making, into grape-sugar that we put vinegar—acetic acid—in, and also produce grape-sugar by boiling any starchy and saccharine substance with almost any other dilute acid?

What a nuisance is the midrib of sections, where full sheets are given! But still greater is this the case when one has a store of new frames filled with immaculately pure combs of heather honey. We will scrape this off the midrib, which, by the way, is found of nearly the same thickness as when it was inserted into the frame: the foundations of the worker-cells are still raised and distinct. These shall be returned to the hives in spring. The heather-honey shall be slightly warmed and stained, or used for making mead; and wherever possible dark brood-comb cut out, so that new comb may be built in its place—new either for stores or brood—brood of a fine and large development by reason of the large cells. This provision of annually new cells for brood-raising we consider a *sine quâ non*.

With regard to the tightening and loosening of the wooden screws of section-cases, hive-doors, and wherever wood comes in friction with wood, do not forget the excellency of black-lead as a lubricant.

In fixing foundation in frames, why may we not string silk threads from one side bar to the other, so that when it is drawn out and fixed to the sides the foundation or comb cannot, if it break, fall across? Where the string crosses cells, as they are drawn out, the bees will gnaw it away, leaving it attached and embedded in the wax at the edges.—X-Tractor.

[Careful microscopic scrutiny has enabled Landois to determine that certain ants do possess a true organ of sound, in the form of a triangular field on the upper surface of the fourth abdominal ring. This is ribbed, and when rubbed is capable of emitting a stridulating sound. Westwood (*Modern Classification of Insects*, vol. ii.) thinks this sound is produced by the action of the large collar against the front of the mesathorax. Whichever it may be with respect to ants, it has nothing to do with bees. Landois has shown that the piping of queens is produced by the spiracles and trachea, the tone being due to the large size of the spiracles. If Landois' experiments be repeated, and two queens placed in separate cages close to each other the piping sound will be produced. The contraction and expansion of the abdomen is for the purpose of forcing the air through the spiracles. If the spiracles are stopped with wax the piping will cease. This disposes of the stridulating theory. *Die Ton- und Stimmapparate der Insecten*, by Dr. H. Landois, will give you all the reliable information respecting sound produced by insects. Although with you we do not believe that the bee pierces the cell-cap for the purpose of injecting formic acid, as it has a simpler method of doing, we do not think there is any doubt about a small quantity of formic acid being in the honey; and if you will refer to the *British Bee Journal* for 1883, p. 267, you will see there that we stated that Dr. Planta had found formic acid, and that this he considered served as a preservative of the honey and prevented its fermentation. Dr. Müllenhoff's experiments also corroborated this. By using the thinnest flat-bottom foundation, we have found no nuisance in the midrib of sections worked with full sheets.—Ed.]

AGRICULTURE AND APICULTURE.

[1394.] In these days of agricultural depression it is well to notice the rapid strides being made by one of its branches—that of bee-keeping. Indeed, it appears quite probable that so far from the farming industry embracing the other in its downfall, the present distress can be made yet another stepping-stone to add still greater prosperity to the profession of bee-culture; and the latter may even in a measure help to restore somewhat of the old position held by the lower agricultural classes.

A few years since people were ever ready to rent or purchase small farms at exorbitant prices, but to-day things are so radically changed that many farms want a tenant, while some are even let at a merely nominal rent just to keep the ground in order and clear the taxes, &c. There are, of course, some who still make farming pay by improved methods and implements in connexion with large holdings, but the small farmers cannot hold out under old rents.

Without here going into the deeper causes we can see that the reaction has been severe and unparalleled, and now its benefit to bee-keepers comes in many of the landlords' restrictions as to working the land have to disappear, and the man who wants a moderate-sized holding for the main purpose of growing bee-forage can have land almost on his own conditions, and in many places at a price quite within the mark for farming to that end.

Working in this way the combined farming may be made to yield a double profit, if the work is only carried out in a systematic manner. Corn-growing must, of course, be the most insignificant object, even if it is followed at all, though of course there must be a change

in the crops every two or three years, if only for the sake of mending and cleaning the land.

Dairy farming is not yet played out, and would work well with bee-farming operations; but then of course the dairy must be under the skilled management of a good man and wife. Then I am aware that poultry on a small scale pays well with a good run, and this department could be under the management of the wife and family, with the master's eye to regulate matters. With the young chickens located near a few acres of borage they will thrive amazingly and require little other food.

I have not much faith in growing fruit, except on a large scale as a speciality, though I have always had the impression that pear-trees would pay well, requiring little or no attention during the busy time. Many kinds can hang almost into winter and will keep long after other fruit is gone, and, what is of the most importance, a good price can be secured for genuine fruit. Of course one would grow a few of the earlier kinds, but these will seldom keep for any time, while some that ripen on the trees soon go 'sleepy.' Though some apples will keep till better prices can be secured, these, as well as nearly all smaller fruit, seem so plentiful as to be hardly worth the trouble of taking to market.

Tomatoes are still profitable, and with these and other fruits that can be grown out of season under glass the master may find profitable occupation while the bees are idle; but he *must* first make himself acquainted with the simple rules of culture, or he is liable to lose very much more than he will gain from any supplementary occupation he may undertake. And, moreover, if the bees are to be the primary object the master must give them his personal and undivided attention throughout the season. Every other interest engaged in should be such that can be managed at this time by some other suitable person.—S. Simmins.

PRICE OF HONEY.

[1395.] Mr. Simmins (1385) says his experience is contrary to his admissions in his previous letter (1361), where he says the price of comb-honey has been lower than it should be; then farther on he says bee-keepers are to blame for placing their whole crop on the market at one time. Here he admits the market is glutted and the supply exceeds the demand, with the inevitable and invariable result of low prices, and if dealers once grasp the impression (it may be a *false one*) it takes a long time to disabuse their minds, in fact, the season for comb-honey will be practically gone past ere it can be done. Do I hear a chorus of retorts, The season for comb-honey is *never past*, but only requires judicious handling to eke it out from year to year?

Now if comb-honey was a commodity that would keep an unlimited time, no doubt the season could and would be extended somewhat, but bee-keepers on a large scale and retailers of honey will bear me out when I assert that a large percentage of sections deteriorate in appearance, and consequently in value, by age. The Secretary and working staff of the British Honey Company know this by practical experience, and no doubt could throw much light on this subject, as they are dealing with honey of all sorts and conditions the year through, and keeping a constant supply in the retailers' hands all the year round; and as they receive honey from all parts of the country and from every kind of plant that blooms, they could for the benefit of bee-keepers give the ordinary percentage of granulated sections, also of weeping sections, also the demand there is for section or comb-honey during the months of, *say*, January, February, March, and April.

Now, as regards extracted honey, the case may be different as to the demand, and it may probably be steady during a greater part of the year, and consequently not subject to any great fluctuations, for the simple reason that it is an article that will keep an indefinite time without deteriorating in quality or appearance. We know that there is a larger part of the crop put on the market at close of honey harvest in consequence of many bee-keepers wishing to realise to meet the many demands sure to crop up at beginning of winter, but as to the rise in price of sections held over Christmas I am sorry to say I have not been able to make any more per gross than for those sold earlier, and in some instances have had to take less in previous years, say, in February and March; perhaps it may be that I do not possess that commercial acumen required to extract higher prices from dealers. I, in my countryfied simplicity, have believed them when they have told me the season for comb-honey has past and there is very little demand for it at this time of the year.

'Do not hold comb-honey into the new year' is my advice to those whom it may concern. Depend on it that strawberries and cream at Christmas would not be devoured with the gusto of midsummer; the reason is obvious why Mr. Simmins should think and contend that there would be a popular demand for sections of honey the year through; and if we can devise any plan to keep comb-honey in its pristine purity and beauty free from leakage and consequent messiness we should be able to induce a larger constituency of retailers to embark in the trade, and thus bring it to the notice of the millions in the large towns and centres of population, thus increasing the demand for a larger quantity; but I doubt if we shall by any device extend the honey season far into the winter months.—Woodleigh.

PARALLEL v. RIGHT-ANGLED FRAME.

[1396.] There is a rude, dictatorial tone about Mr. Saddler's communication which makes replying to him an exceedingly distasteful task. I do earnestly commend him to a perusal of the recent remarks by 'Useful Hints,' and your editorial on 'Parsons and Bees;' nevertheless he must be answered, there are many unpleasant yet necessary tasks in the world.

He says my admission that I have adopted broad-shoulder frames proves that I am behind the times. I answer this remark by stating that I had tried other plans, including metal ends, and discarded them in favour of the one adopted. This was a distinct decision come to by all my neighbours and myself, after frequent trial and approbation. Besides (to use a Hibernicism), if I am behind the times I am in the company of multitudes of advanced bee-keepers; some four thousand, I believe there are, of these misguided framists in the British Isles. Call us broad-shouldered, strong-framed, and, if you like, slightly waxy bee-keepers. 'Abbott,' vide Mr. Saddler's letter (after this, let us for ever forward forbear using titles of courtesy towards each other), 'Abbott' has more of his frames in use than probably any other frame-maker in the world, certainly several times the quantity of any single maker in the United Kingdom. I have made the inquiry, and am informed that four men are engaged winter and summer at the machines making nothing else. This is being behind the times, forsooth! Fancy any bee-keeper *adopting* any particular style of frame, using it for only two months, then discarding it, and laying down the law after the manner of one Dogberry of yore! Fancy, too, *punching* shoulders off with a chisel! As an inventive genius, and an alleged advanced bee-keeper (or hive-maker, I don't know which), why could he not, instead of doing so much *punching*, 'tax his learned faculties,' and cut out a notch from the back of the shoulder, which would have enabled him to distance his frames as he pleased?

As to the question of draught, if my remarks be referred to it will be found that the two openings required would be found in the hive door and the

turned-up edge of the quilt during the early spring manipulations. Further on in your correspondent's remarks I am told, with an effrontery which I take to be characteristic, that 'the difficulty in manipulating right-angled frames exists only in my imagination, that it is practice that makes the difference.' Why cannot people who pose as *quidnuncs* at least *read* the articles they criticise? In my remarks I made special allusion to hives, several of which are placed on long stands—a common practice in exposed, windy districts—the difficulty of manipulating these being evident on the face of it.

Mr. Saddler misquotes me thus:—'He (myself) says he went to Nature for her samples.' I did not; I said 'simples.' He (Mr. S.) continues, 'The rose, the pansy (*sic*), or the chrysanthemum of the present day—the product of Nature—has not science turned the stamens of these flowers into petals? Nature has nothing to do with it.' (This is really *reductio ad absurdum.*) No, Sir, Science has not done this; get a specimen of Nymphæa alba, and then dogmatize. Let growers of orchids say whether they would not give the ears off their heads, so to speak, for an hour or two's chat with the collector of these exotics in the tropics and their varied homes, so as to get at the surrounding natural conditions of their habitat. Mr. S. alludes, I presume, to the *double* rose and the *double* chrysanthemum, which 'sport' with doubling tendency, this tendency being what is called 'fixed' by the gardener. Shakespeare tells us:—

> 'This is an Art which doth mend Nature;
> Change it rather, but the Art itself is Natnre.'

I suppose the 'divine Williams' will now be taken to task, after the recent Baconian method!—R. A. H. Grimshaw, *Horsforth, near Leeds.*

BEES IN NATAL: THEIR COMPANIONS AND PARASITES.

[1397.] I am posting to you to-day some specimens of an insect which is common in hives here, and of which I cannot ascertain the name, or whether it is hurtful to the bees. These insects are certainly more numerous in weak stocks than strong ones; bees seem to pay no attention to them, whether running on combs or frame, or holding on to a hind leg by their disproportionately long nippers. If bees are thrown from a frame on to the ground in any quantity, one or two of these insects will be seen hurrying to catch hold of the bees' hind-legs to be lifted into the hive again. They also are to be seen on swarms when knit on bushes, &c. So far as I can observe they do not penetrate deeply into the hive usually, but prefer being at the top, especially hiding under cover of the frames, between the cover and the frames the cocoon is most frequently to be found. The cocoon is white, circular, and a little more than one eighth of an inch across, nearly flat at the top, and when the insect within is nearly perfect it can be dimly seen through the covering.

Another insect I have seen on bees here is apparently a kind of tick, but I have no glass strong enough to let me see them well. They are grey in colour, about the size of a small pin's head, roundish, and look well filled out. They soon dry up when removed from the bees.

Lately in a friend's hive I saw the largest 'death's head' moth I ever saw: it was a little way down the third frame from the end, and was entirely covered with bees, except just its head and shoulders and top of the back between the insertion of the wings. Both bees and moth were quite quiet. This upsets what I have always believed before, that bees avoid these moths in terror. When I stuck a penknife into the moth's back to remove it the loudness of its shrieks (I notice other moths shriek here) quite astonished me, but the bees took very little notice, and apparently only got off its wings because they felt it was being moved off the comb.

Bees are said not to like bad smells, but I saw a huge swarm of bees which had taken possession of an unsavoury rabbit-hutch, much to the distress of the children who owned the rabbit. They were afraid to remove him for a long time, and watched him through the bars. From the time the bees began to enter till they were perfectly quiet and knitted into a mass the rabbit lay as still as if dead, with his ears tight to his back.

I send two or three of these insects which have been in spirits of wine, and two or three which have been in cotton-wool since I took them. I hope they will arrive safely.

If I can I will put in a specimen or two of our bees, though I believe you have seen them. They are not so pretty as Ligurians though much like them. Amongst them are a few smaller bees, and without the band. These are much blacker than the ordinary ones. I do not see why this difference exists, but it is noticed by several bee-keepers.—J. R. Ward, *St. Mary's Parsonage, Richmond, Natal, Nov.* 15, 1887.

[The insects sent are Chelifers* (claw-bearers). Chelifers constitute a group of animals allied to the Spiders and Mites. From their resemblance to scorpions without tails they are called Pseudo-scorpions, or False Scorpions. Their palpi are elongated and armed with pincers. The species live under the loose bark of trees, in chinks of old furniture, &c. They are also to be found under the elytra of beetles, but their object in occupying this position is unknown. There is, however, little known respecting them, and any observations regarding their habits would be most useful. Kirby makes mention of the peculiar mode of progression of the book-crab (*Chelifer cancroides*). All must admire the peculiar instinct in the insects making the special use of their pincers, and thus getting into the hives. It appears to us that they enter hives for much the same purpose as earwigs in this country, which are not desirable companions to bees, but which do little harm—especially to strong stocks. 2. From the description we should say that the parasite on the bees is the *Braula cæca*, or some species of mite. 3. The Death's Head moth (*Acherontia atropos*) is remarkable also in this country for the shrieking or squeaking sound which it emits. This sound, together with its dark colour and its skull-like mark on its thorax, has led to its being regarded with superstitious dislike. How the noise it emits is produced is not satisfactorily known, for the authorities differ very widely as to its cause. Schroeter says that it utters the cry when it rubs its tongue against its head; Rösel, that it is produced by the friction of the thorax and abdomen; while Réanmur believes that the cry comes from the mouth, or rather from the tongue, and that it is produced by the friction of the palpi against that organ. Huber denies this; as also does Passerini, who says that the sound is due to the alternative inspiration and expiration of air from the central canal of the proboscis into a peculiar cavity of the head destined for giving it the required resonance. But a number of French *savans* who instituted a series of experiments to ascertain the actual cause of the noise, came to the conclusion that it was not attributable to any of those above given, but that it remains to be discovered.†

We shall be pleased by your forwarding further communications.—Ed.]

BEES IN MINORCA.

[1398.] Having been brought up the best part of my life in the United States, I was greatly interested on reading the account in the *British Bee Journal* of the progress of modern bee-culture in that land of 'magnificent distances.' And as this progress has mainly taken

* Χηλή, a claw, and φέρω, I bear. † Kirby.

place during my absence, I would thank you very much to answer a few questions, such, for instance, as the respective size and depth of American and Canadian hives and frames.

I take it for granted that you prefer the British standard, as your own Cowan hive is adjusted to it; this is the kind I have introduced with good results in Minorca. But some people object to the standard frame as not being deep enough and large enough, preferring the Langstroth or Dadant: and what has almost made me waver is the *penchant* of your friend, M. Bertrand, in his *Revue Internationale*, for the latter, and against smaller hives and combs. It is a mystery to me how Germany, the land where, I believe, a larger portion of bee-publications is published than in any other country, and where the subject is most scientifically treated, should insist in preferring its *Normalmaas* and *Burki-Jekers*, when the above *Revue* insists that its favourite Dadants produce double the quantity of honey. Could you give us any light on the subject?

The past summer was exceedingly hot and dry, and we were months without any rain. Consequently our honey-crop was shorter than we could have wished. Still, we managed to get some 800 lbs. out of sixteen hives, besides half-a-dozen good swarms. But the bee-moth troubled us to an unusual extent, many moths being double the size of other years, and of a light lead colour. The larvæ were also disgustingly large, and of a similar colour.

Besides our home-apiary, increased to some thirty hives, we have just been starting another in the interior, of about fifty more, which we intend to increase to a hundred the coming spring. This we accomplished by transferring some ninety old-fashioned cylinder hives into forty-five bar-frames. The honey in that district is very fine. This fall the weather has likewise been unfavourable, but our November is often warm enough for transferring, and the fields are always carpeted with flowers that yield much pollen, but little honey. (By the way, what shall I do with combs half full of pollen?)

I must except our rosemary, *Clematis cirrhosa*, and a kind of heather (*Erica*), which yield honey in considerable quantities. A fortnight ago my bees were *booming* on *Cirrhosa* as in our April honey flow. In the interior they have acre upon acre of heather, which some years yields a second honey-flow so abundant that occasionally hives will throw off a swarm as in spring. This plant blooms till after Christmas, but heather honey is not liked here. The hives, however, keep very strong, and seldom need feeding. A friend of mine, for whom we set up a bar-frame hive in that locality, told me they were capping two racks of twenty-one sections in mid-November, the second storey beneath being a solid mass of honey. But the weather is now stormy and unfavourable for such operations. As to rosemary, it is an evergreen that flowers nearly every month of the year and its honey is very fine.

By the way, a certain Mr. Furness declares, in *Gleanings* for April, that the great majority of American apiarists 'are abandoning the large brood-chambers of ten and twenty years ago and using eight, and even less, L. (Langstroth) frames for both comb and extracted honey.' 'I,' says he, 'left over fifty colonies on five L. frames the entire season, from April to October last year, and never had better or larger swarms, or got better results than I did from these contracted hives.' Does he contract with excluder zinc? The Editor, Mr. Root, does not seem to disapprove of this; and even Dr. Miller, the able apiculturist, adds, 'I also had most of my colonies on no more than five L. frames from April to October, but for all that I want a hive capable of holding ten frames some parts of the year,' which would seem to indicate that Mr. Furness does not. You, Mr. Editor, who have so recently returned from the States might probably explain to us the *modus operandi* of the five-frame system of contraction. I see that Mr. Simmins in his new book, *A Modern Bee-Farm*, also favours contraction during the honey-flow.

A few days ago we received a Carniolan queen from the latter gentleman, but imagine our surprise at finding both queen and bees as like ours as two peas! We have, however, introduced her majesty to a pretty strong colony and await results.

I had been much puzzled by your former statement in the *B. B. J.* that in England *Clematis vitalba* did not furnish pollen to bees. At last a friend, who is also a botanist, has cast some light on the subject. It appears that what in our vernacular is wrongly called *Vitalba* here is another species, and the true name is *Clematis cirrhosa*, our bees gathering both honey and pollen from it.—F. C. Andreu, *Port Mahon, Minorca, Dec.* 1.

[We have become so used to working the British standard that we would not be able to get such good results with any other size. The standard size was adopted, after very careful consideration, as the best, for both extracted and comb honey, although at that time comb honey was most considered. Its advantage is that it is just large enough when working for comb honey, and small enough for storifying, without the necessity of using supers of a different size to the body-box when working for extracted honey. The large hives, such as the Dadant and Layens, are both excellent, but more suited for extracted than comb honey. By using two or more of our sized hives you can expand to any extent. The standard frame has an advantage in being neither too deep nor too shallow for general use, as the results obtained have shown. Putting a second box on the top when the stock-box is crowded and honey is coming in is not too much, but could not be conveniently done with a much larger frame. We do not know why the Germans retain small frames and hives, and we think M. Bertrand quite right in his criticisms, as there is no doubt but that, all things being equal, a larger hive, such as ours, or those used in Switzerland, will give double the quantity of honey. The Langstroth is but very little larger than our Standard, and this hive is in more general use in America than any other. The object of contraction is, when working for comb honey in sections, to force the bees up into the supers. Supposing a ten-frame hive is just full of bees when the honey-flow commences, it is evident that if a crate of sections were put on the top it would be no inducement to the bees to work in it until they found they were too crowded below. Thus much time would be wasted, and several days' honey-flow lost. By removing two of the frames (or more) and contracting the space to eight frames by means of division-boards, the bees are at once so crowded that they have no alternative but to go above or out at the entrance, and honey being plentiful they are generally contented to work in the supers. You will see in the *Guide-Book* that we endeavour to get our stocks strong and full of bees, so that they can take advantage of the honey-flow, and by giving space in advance of their requirements, we do not require to contract our hives, our frame not necessitating this; but we can do so if we like. You can keep your combs half full of pollen until the spring, but they should be subjected to the fumes of burning brimstone to destroy the wax-moth or larva. They will probably be useful in the spring, but, if you should not require them then, you can shake out the dried pollen, if it has contracted sufficiently, or you can cut down the cells to the middle. You seem to have funny names for flowers in your part of the world. Rosemary with us would mean something quite different to *Clematis cirrhosa*. This has several English names, viz., Evergreen clematis, Spanish travellers'-joy, and Spanish wild cucumber. It does not in any way resemble *Clematis vitalba*, which is the com-

mon travellers'-joy found with us. We are glad you have been able to clear up the mystery respecting the pollen.—Ed.]

BEE-KEEPING IN THE CRIMEA.

(*Extract of a Letter from A. de Zoubareff, Moscow, December 10th.*)

[1399.] I have also been travelling with my wife this autumn, and have spent the largest part of the time in Sebastopol. The climate of this city is superb. Its destruction, caused by the war, has contributed much towards its embellishment, so that if you have not seen it within the last five years, you would be astonished at the marvellous progress that has been made in buildings, pavements, and plantations, although these last are somewhat hindered in their growth by the southern sun. As regards apiculture in the Crimea, it amounts to next to nothing. The honey has a bad flavour, which I am inclined to attribute to the tobacco plantations. Some years ago I got some honey from the Valley of Roses (Kasanlik, Bulgaria), thinking to find the aroma of these flowers in the honey. Unfortunately the taste was very disagreeable, slightly bitter, resembling tobacco. Has any one ever observed the influence of tobacco on the quality of the honey?

Our peasants are beginning to take to bee-keeping, and I am doing my best to prevent the introduction of hives on wrong principles. Have you ever heard of an apiary being attacked and almost entirely destroyed by large numbers of dragon-flies? an event which actually occured this summer in Siberia. The baffled bee-keeper made use of his gun, and was successful in driving away the villanous creatures.

STANDARD TOP BAR.

[1400.] In your issue of 1st December I notice your correspondent 'Robin Hood,' in his letter (1370) page 524, thinks that it is time the B.B.K.A. altered the rule relating to the size of standard frame top bar. I think that if they have a rule to that effect it should certainly be rescinded, and let bee-keepers use what size top bar they like best, though for my part I prefer a 17 in. bar, and it is certainly the best size for a beginner; but is not the frame of a Cowan hive and of Simmins' Economic hive acknowledged by the B.B.K.A. to be standard size, and they have both a 15½ in. top bar?

I do not think that the size of top bar has anything to do with success or failure, although I cannot say the the same for metal ends and broad shoulders; but they have their advantages, also disadvantages, the latter predominating.

In a former issue the question was asked: Have four-way sections been better finished than two-way sections? My experience is that they have. They have been filled more quickly, have fewer popholes, and are built up to the edge of section, as Mr. W. McNally has already informed you, but I have used no separators. Many sections weighed 20 ozs., and very few under 16 ozs. They were projecting too much to be glazed or to pack safely. I should advise slotted separators to be used.

I should like to see the experience of those bee-keepers who have tried the shallow invertible hives during the past season, as it had many champions during the last winter months, but perhaps they have had a check to their enthusiasm, also what results have been obtained with Mr. Simmins' Union Hive with large frames.

Bee-keepers have several times been invited to form district societies, making their own rules, &c. Now in many districts where such a society might flourish there is, perhaps, not a single bee-keeper who has had any experience in working a society, and has no idea of the rules that should be drawn up, not having seen any belonging to bee associations; so after having read the invitation think no more about it, not that they are not interested in the movement, but they know not how to go about the work of carrying on such a society. Now, if some experienced bee-keeper would write an article in your valuable *Journal* on How to work a District Association, it would instruct many who are at present ignorant in such work, and would be the means of creating a number of small societies, which would strengthen our Counties and B. B. K. A.'s considerably.—J. Woodhead.

TWENTY YEARS' EXPERIENCE OF THE MOOR SEASONS.

[1401.] My last paper, 'A Trip to the Heather with the Bees,' I wrote with the sole object of interesting the readers of the *Bee Journal*. What I stated was strictly true; in fact, the words used failed to fully express the pleasure I have often found in these journeys. My object now in the present communication is to give an experience that will in a measure help your readers to decide as to the worth of the moor season.

My first season, 1867, was a remarkable one. It was the best I have had. We had had a very wet summer that year. It commenced to rain in July and rained almost incessantly up to the beginning of September. August was very wet. The bees did not get a start until September, and in that month we had a fortnight of very fine weather with heavy dews at night. It was most extraordinary what the bees accomplished that season: I well remember it. The friend I went with had a large stock of hives (all straw hives; we knew nothing about frame-hives at our place then). He put on his best hives two supers, one 12 in. dia. × 4½ high, and on the top of this a super that would hold fully a stone of honey. Everything put on to the hive was full, except a third swarm that was a mere handful of bees when hived. On this he put a large super, more for the sake of having it at the moors to change any of the others with. Well, in the centre of this the bees put a comb the full size of the super, two inches thick and nearly all sealed. In one of my supers the bees had run the honey into a solid mass; there were only tunnels running through it here and there.

The next year, 1868, was the hot, dry summer. The take this year was rather above the average. 1869 was another hot, dry summer, but not near so dry as the previous year. The heather came into bloom earlier this year than ever it was known by the oldest inhabitants on Muggeswick Moor. It was a better season than the previous year, but the most of the bee-men were too late in getting their bees landed at the moor. One party I know who got warning about the forward state of the heather took his bees to the moor in July, and he had a large take of honey. I well remember this season. It was the 5th or 6th of August when I got mine landed, and I had them let out by six o'clock that morning, and after I got my breakfast, between seven and eight o'clock, I went to see them, and I was astonished at the sight I saw. Every bee I could see was working with a vengeance, none dulling about, but going in and out without halting a moment, and they had only been let out about an hour and a half. Some that read this will be slow to believe it, but it is quite true. I would not believe it myself if I had not seen it. The heather was at its best, and you could feel a sweet smell when you were standing near it. I am not quite certain whether it was the following year or 1871, but it was either one or the other that the season was remarkable. We had a cold and late spring—a long continuance of east winds—and the summer was cold and wet. The heather was late this season, but when the bees were there it came a fortnight very fine, and at the right time, calm weather with heavy dews at nights; indeed, I well remember this was the only period of fine weather we got that year, but notwithstanding the bees got very little, simply because there was nothing, or at least very little, in the plant. Now I have had several years like this,

but not so remarkable as this one; and the main object I have in writing is for the readers of the *Bee Journal* to understand that fine weather in August is not the only thing that is required to make a good moor season. If we have a wet spring and not so much of these cold east winds, and a hot summer, the heather will have plenty in it, and if fine in August a splendid season, but even if it is showery weather when the heather is in bloom the bees are not so much stopped in their work as you would naturally suppose, for I have been at the moor on a day when I have seen several showers, and the bees just flocked home when the shower was coming, and as soon as ever it ceased raining they were out again as if every hive was swarming. You see the trip the bees have to make to the stuff is so short; and more than that, heather is a very hardy plant; it will stand cold and wet better than any other honey-producing plant to my knowledge: but supposing there has been a week of fine weather when the heather is at its best and there comes down a very heavy thunder-shower, the season will be done. When the like of this happens I always go for my bees the next day, for no matter how fine the weather may come after the hives never get an ounce heavier, but soon get lighter.

I might here say in reference to those that have suffered by the honey-stealers, that it is nearly always those that let their hives stay after the season is done that get their hives and supers stolen. I have only suffered once: it was in 1885 when I got my best hive stolen and two supers of honey. In 1874 I would have been robbed, but as soon as the thieves had started their operations there were some geese the farmer had in an outhouse commenced to make a great noise through being disturbed that the farm people were roused and the thieves had to decamp.

In my time there has only been one real famine at the moors; it was in 1876. It had been a wet summer, and it rained incessantly all the time they were at the moors, more than two-thirds of the hives died; all along the rows of hives they were lying on the grass like chaff. This famine made great havoc of the bees in our neighbourhood, and several I know gave up the business.

I would like to impress upon those that may intend trying the moor season the importance of providing sufficient ventilation. I know some will be ready to say, Remove the quilt of the section crate, and they will travel all right; but no, this I have learnt to my sorrow, will only do on a cool night. On a close, warm night more than this is needed, and in my hives I have at the back a hole eight inches long and ¾ inch in height opposite the entrance for ganze with a wood cover to fit in when the hives are set up.

In conclusion, I would advise all those hat intend taking bees to the moors to make sure and get a quiet horse. The experience I had one dark night will show the importance of this. After getting a short distance from home I stopped just after crossing a bridge and left the horse to go and speak to a friend who was driving behind. My horse without a moment's warning bolted over the embankment on the left: fortunately the cart did not upset, and I ran and got the horse turned to the road, and he just could manage to struggle up the embankment on to the road again, but in doing so the hamestich broke; fortunately it broke at a joint that made it easy to tie with a piece of rope. After this he wheeled about at some dressed stones by the roadside. After this again he took fright at the noise of a steam-engine and ran away, but was pulled up before damage was done, and when we got to the moor we missed the right track and ran right into a bog, and the horse sunk right up to his hoofs, but being a powerful horse he went right through the bog and up a steep hill and we got landed in safety. After this I would never take my bees to a place that in order to get to it we had to cross the moor. I would warn your readers that it is a very dangerous thing when any of the moor has to be crossed. I have known several accidents happen from this cause. The friend that went with me in 1867 had a very bad accident from this. In walking over the moor you may think some tracks smooth enough to cross with a cart, but when you come to try it you find it to be a dangerous business.—W. J.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements. We wish our Correspondents to bear in mind that, as it is necessary for us to go to press in advance of the date of issue, queries cannot always be replied to in the issue immediately following the receipt of their communication.

W. G. Preece, Jun.—*Sartori's Diagrams.*—The price of the Italian diagrams mentioned as having been prepared by L. Sartori is five francs post free.

Rev. F. W. Pudsey.—*Cowan Hive.*—1. These can be used for transportation to the heather by having the racks Fig. 7, in *Guide Book*, placed on the top at the ends of the frames, and also by putting one at the bottom to steady them. Or fix the frames by putting in sticks as directed on pages 106 and 107. Were we sending our hives to the heather we should only send the body boxes with temporary floor-board screwed on, and leave the outer cases at home.—2. You will see that we reduce the length of our top-bar as we generally use metal corners as shown on page 33, which is a full-sized sketch. If you wish to retain the 17-inch bar you would have to add a rabbeted strip on the outside, cutting down the hive side to suit it. We thank you for your complimentary remarks.

Mornino Star.—1. 'The Woodbury Hive' is 14½ inches square and 9 inches deep, taking ten frames. The frame is 13 inches by 7½ inches, with a ⅝-inch projection (lug) at each end, for resting on the rabbets. These are *inside* dimensions, both as regards hive and frames.—2. *Carbolic Acid Solution for Removing Sections.*—To a quart of warm water add 1½ ounce each of Calvert's No. 5 carbolic acid, and of glycerine. Shake well before using. In this solution steep a piece of common strainer, or flannel, wring it dry, and spread it over the section case, when the bees will at once retreat if the sections are sealed. When sections are unfinished the bees will sometimes remain for a time to gorge themselves on the unsealed honey, but, as a rule, they are easily dislodged by the dreaded scent of the carbolic acid.

W. T. Cadness.—1. *Middlesex B.K.A.*—By an oversight the expert missed you in making his autumn tour. The Secretary of the M.B.K.A. for your locality is W. M. Graham, Latymer Lodge, Church Street, Lower Edmonton. Subscriptions for 1888 are due before January 31st next. No record of honey produced in Middlesex has yet been published, but the Annual Report of the M.B.K.A. for 1887, about to be issued, will contain some information on this point. 2. *Trap for the Escape of Bees.*—We have not seen an illustration of the trap referred to. 3. *Fumigating Combs.*—Ordinary stick brimstone, placed in an old tin with a live coal, and the box containing the combs set over it, is the mode of fumigating combs. A piece the size of a walnut would do a large box full. 4. The library is not open for reference; only members of B.B.K.A. can borrow books, which they may have at home.

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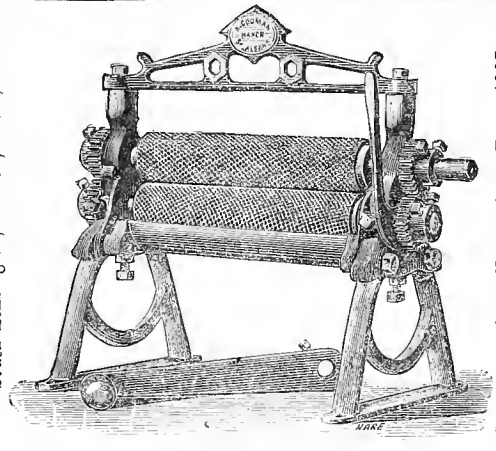

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Although Combs are all visible on both sides, the natural Brood Nest is preserved, which enables the bees to do quite as well in these hives (when covered) as in the ordinary wooden ones.

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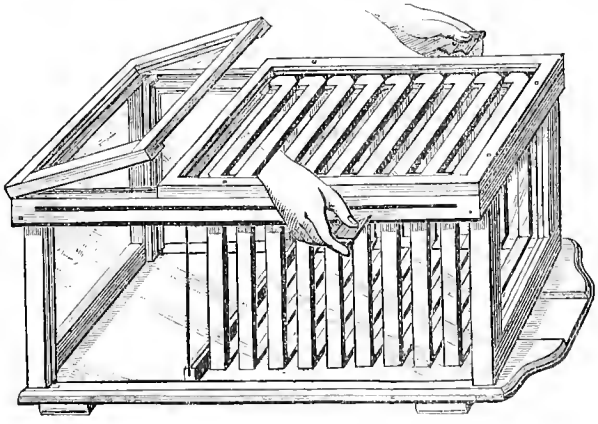

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The entrance is cut in floorboard, so that by merely placing a piece of wood or glass across it a tunnel is formed. The front top frame can be easily removed, and a super put over the nine frames.

The bees can be fed from back of hive without disturbing the hive or frames in any way, the top frame behind the dummy is hinged (as shown) and works independently. The hive is made so simply that it can be put together or taken to pieces in three minutes, and when in pieces will fold into one-fourth its bulk. **It takes the ordinary Standard Frames.**

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THE BRITISH BEE JOURNAL

Communications to the Editor to be addressed 'STRANGEWAYS' PRINTING OFFICE, Tower Street, Cambridge Circus, W.C.

[No. 288. VOL. XV.] DECEMBER 29, 1887. [PUBLISHED WEEKLY.]

Editorial, Notices, &c.

NOTICE.

A large number of subscriptions expire with the present issue. This fact is indicated in the usual way by the *Journal* being enclosed in a coloured wrapper. A form for the renewal of the subscription will be found enclosed in the *Journal* itself. We trust our subscribers will favour us with their orders previous to the date of the next issue.

END OF VOLUME THE FIFTEENTH.

With this number we are brought to the close of another volume—the fifteenth of our series. The temporary stoppage at this station in the history of our *Journal* furnishes us with a favourable opportunity,—an opportunity of which we gladly avail ourselves,—of thanking, in all sincerity, the numerous friends who have rendered us assistance during the past year; and it also enables us to acknowledge the many testimonials we are constantly receiving of the appreciation of our labours, and of the approval of the mode of conduct of the *Journal*.

Our volume this year has extended to 580 pages, and the copious index testifies to the variety and extent of the subjects which have passed under our notice. Apiculture is developing itself in every direction; and in none is this development more visible than in the amount of literature that is devoted to its elucidation. In this country two periodicals are altogether given up to its treatment, and several others, of a cognate character, touch upon it incidentally. In Germany, and on the Continent generally, and in America, the number of apicultural periodicals is very great. Besides these, books,—scientific, physiological, and practical,—are continually issuing from the press. The Voice from all these, to compilers of books and conductors of publications, is that of encouragement to advance in the further evolution of the subject they have undertaken; and we trust, with the continued assistance of those who have favoured us in the past, to obey that Voice, and ever to be in the vanguard of all that will lead to the greater development and the more enlarged knowledge of the economy and management of the Honey Bee.

During the past year there have been no shows similar to that held in South Kensington in the year 1886—though we fain would have wished that the Jubilee year had not passed by without its having been signalised by such an exhibition—yet the year has been one of steady and continued progress, and shows much promise for the future. The present year cannot be pronounced to have been marked by any remarkable degree of prosperity, yet we have had no reason as bee-keepers to complain, but, on the other hand, much cause to rejoice and to be thankful with the amount of success which has been vouchsafed to us.

Again thanking our friends for their kindness in the past, and hoping that there will be a continuance of their favours for the future, we trust that the Coming Year may be one of prosperity and happiness to all bee-keepers.

FACTS.

This Jubilee year will soon come to a close, and 1887 will have been inscribed on the pages of History as a season memorable for loyal rejoicings and for the accomplishment and inauguration of various praiseworthy and noble undertakings. Bee-keeping has made wonderful strides in our Queen's reign, but such development we do not intend to trace on this occasion, but rather to dwell on facts springing from the result of such advancement. The nineteenth century, undoubtedly the age of invention and the age of steam and electricity, may be looked upon as a wonderful period of the world's history. Men's minds have been fruitful in developing vast and wonderful undertakings, largely to the benefit of their fellow-creatures, but often, unhappily, in a contrary direction. Bees have had their share of both sides of the picture. We are all aware how great have been the improvements in our system of apiculture. Bee-keeping has not only become a fashionable pursuit, but now ranks as one of Great Britain's rising industries. Honey was once a luxury, but now forms one of our staple foods; where one pound was used years since the consumption may now be reckoned by the hundredweight. The person who speaks of the present low price of honey overlooks the fact, that whereas he was able to obtain 1*s.* 6*d.* and 2*s.* per lb. for the product of his apiary ten years since, now with modern improve-

ments the quantity of honey from his apiary has largely increased, the quality likewise improved, and the facilities for selling it greater, so that, in spite of the apparently low price, the careful bee-keeper, on balancing his accounts, finds that his profits have more than doubled themselves, and this with less labour and outlay than before. We have noticed the ever-increasing production of honey all over the world, but this is not the danger the apiculturist has to contend with. America and Canada may collect their tons of pure nectar, and yet there is room for more. By an increased sale of honey our British productions will come to the front; once let a man taste prime honey, and he will never go back to inferior. The danger we have to contend with is the unprincipled scientist, the man who uses his knowledge of bees for unlawful purposes; and further, the man who advances his nefarious scheme without the aid of bees at all. The history of the first of these individuals we have recently learnt from a clergyman who had been travelling in the Far West, and visited many of the adulterating bee-farms. This apparent bee-keeper settles down to carry out his practices in a quiet place with a favourable climate; he has a large number of hives, but the pasturage of the district is quite immaterial to him, as his bees have to obtain their stores from large feeders placed all over the apiary. Containing what? Our informant was unable to find out, as although everything in the establishment was shown to him without reserve, yet he was not permitted to taste the contents of the vats or feeders from whence the bees were obtaining their supplies. The latter of these scientific bee-keepers is best described in the following quotation from a magazine of this month:—'Artificial honey now made in New York is so much like the genuine article that only experts can detect the difference. It is in racks, the same as the natural product, and now and then the wings and legs of a few dead bees are to be seen to further the deception. It can be sold at a profit of 5*d.* per pound.'

We know too well the practice of mixing glucose with honey, and the methods of detecting it, and how a London firm has been manufacturing another substance, palming it off as honey. But we feel confident that the bee fraternity, located in whatever part of the world, will, as the Cornish motto has it, 'One and all' endeavour to stop such practices, prejudicial not only to the bee industry, but injurious to the health of the community at large.

WINTER PACKING.

The simplest way to pack bees snug and warm for winter is to fill up the space between the dummy and the hive-side with loose cork-dust, chaff, or sawdust, and cover the tops of the frames with several thicknesses of carpet. This simple method has the prime recommendation of answering the purpose of keeping the bees warm, as well as being so simple that no one can excuse themselves from so packing their bees on the score of trouble or expense. But I found, although this plan answered well, it had its drawbacks. My dummies do not fit down on the bottom board by a bee-space, this not only saves bee-life, but improves the circulation of the hive; but in early spring it used to find my bees a job at which they used to work with energy, it was carrying out the winter packing. This led me to adopt the 'mattrass' shown at Fig. 1 instead of loose packing;

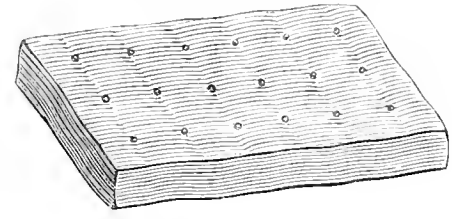


Fig. 1.

there are also other advantages which quite recompense me for the extra first cost and trouble entailed in their adoption.

After extracting is done, at the close of the honey season, I put the last of my frames back outside the dummies in the stock hive to get them well cleaned. As fast as they are cleaned I remove them, and if there are only a few bees clustering outside the dummies after all the frames are removed, I begin to wish to see that empty space filled with packing. We often get very cold nights, even early in October, before one has quite got all in 'ship-shape' for winter packing, so four years ago I abandoned the loose cork-dust for the 'mattresses' I now use.

They are made of 'tick,' the material used by upholsterers for the cases of feather beds. They require to be cut pretty accurate so as to fit snug all round, and care is required to make the corners square. Mine are two inches thick when stuffed. I use cork-dust for packing, and stitch them down upholsterer fashion with twine, using small 'tufts' of tick to prevent the twine from pulling through. I cannot tell you the exact cost of mine, but I know it was a trifling sum, the main item was the ticking. I got a sack full of cork-dust from the greengrocer's wife for a 'section.' If you want to ingratiate yourself into the good graces of the ladies, there is one of two ways that I never knew to fail; one is to take notice of the children, the other is 'mel.' As to making the mattresses, that found me amusement of an evening or two as a relaxation from harder toil, or 'slinging ink.' You will remember the fate of 'Miles Standish,' because he did not follow Cæsar's advice although he knew it well. So I cut out one mattrass myself, drew out the sewing-machine and rattled away, this only drew forth the mild request that I would not break it, 'I was not treading a turning-lathe, remember;' but, however, although it is a good thing to show you can help yourself; that first attempt was not a complete success, the corners were provokingly round and I wanted them bold, but I had learnt a wrinkle that I remedied in my next; the first was slightly too short also, I allowed too much for 'bulging' when filled, and was disappointed to find it did not 'bulge' but very little.

My piece cut a dozen, and I contrived so that I had scarce a scrap of waste. I could see there was an unusual large pile of needlework ready to be machined, so I got a school girl to make them for me, giving her her choice of 'pence' or 'honey.' The 'mel' won again; she was so enraptured with the idea that she got two of her mates to help, and the dozen were done in one evening. A slit about two inches long was left to fill them at, the filling I did myself, having shot the cork-dust into an oval foot-pan for the purpose. The tying down requires a little care, but with ordinary care and a little common sense you may so tie them, that, with the exception of the indentations made by the twine, they will be so level and the edges so square that they will stand against the dummy, if the ends touch the hive-sides, just as tight as they should do, in a Combination hive for example, even

if the dummy is several inches distant from the hive wall.

If your hives are packed with loose packing—and fie upon you if they are not packed at all—you all know how awkward it is to examine the frames in early spring, so here is a nice little job for you by the fireside this winter during the long evenings, so that in spring they will be ready for use; you can then empty out the loose packing and put the mattrasses in their place. I can answer that once having used them you will never resort to loose packing again; and when you remove a mattrass from a dummy, if you feel how warm it is, I am sure you will hesitate ever to remove them and disturb the bees in early spring unnecessarily.

For the top I use one cotton quilt and two carpet ditto; the cotton quilts are renewed each year, they get so coated with propolis. When I have new quilts I lay them on a board, place an empty food-bottle exactly on the centre of the quilt, and run the point of my penknife nearly around the bottle; this leaves a small piece to act as a hinge. The carpet quilts are all bound with braid, and last me some years, but they are all cut as described for the food-bottle, and by this method all the holes come 'plumb' one over the other in all my quilts. I have the character of 'making mattresses for my bees to lie on, and sheets and blankets to keep them warm, and that is why they bring me in so much profit.' In spring, if I wish to gently stimulate, I remove the two carpet quilts, lay the flap of the calico quilt back under the first carpet quilt, the flap of the first carpet quilt is laid back in its turn under the top one, and the feeder stage is placed on the flap of the top quilt, and so all is kept in position. Bulgy! No, it is not, if you lay them down neatly and turn your quilts around so that no two flaps come one under the other. This brings me to my 'trays.' In October, 1882, when the *B. B.J.* was in the hands of the veteran C. N. A., he told us to make trays by nailing four pieces of wood together for an outside frame, and by fixing four more pieces in the middle of this frame in this fashion (Fig. 2). You thus have a centre hole in which you may place your feeding-stage. I thought I knew better, so I made them without the feeder hole. This I have remedied; they are now made like Fig. 3. The wood with which the trays are made should not exceed three inches in depth, as too great a depth of packing is liable to

Fig. 2.

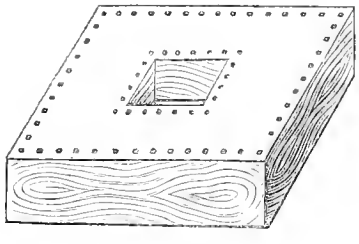


Fig. 3.

get mouldy. The trays described by Mr. Abbott were only covered with canvas at the bottoms, but mine are covered both top and bottom: this prevents the chaff with which they are filled from getting spilt. The bottom canvas should be fixed somewhat loose and 'baggy,' and the tray should not be filled very tight. The chaff I use is wheaten chaff from the winnowing machine (not chopped straw), and the centre hole is filled with odd pieces of flannel in winter, when the feeder is not in use.

All my hives are so packed this year, and I have a few mattresses to spare in case I am compelled to remove any of the frames in early spring, which I scarce think will be necessary as they have all this season's queens and plenty of stores. I flatter myself that my winter packing will last me for years, and give me little further trouble; moreover, that it is easy of removal in spring, will not make a litter in the bee-garden as a lot of loose packing does, and can be kept on, if early summer should prove cold as the past did, right up to the time of supering or storifying.—Amateur Expert.

MY BEES

By Mrs. Reginald Bray,

Author of 'Family Feats,' 'Ten of Them,' 'We Four,' &c.

(*Concluded from page 558.*)

Chapter VII.—Experts.

It was almost a relief to leave my hives that August, and I looked forward to my clean, healthy Shere hive with unmixed feelings of delight. I pictured the supers filled with honey; the box held eighteen pounds, so that if I got that full it would make up to me a little. I wrote to my cousin to ask her to open the hive and tell me if the super boxes were full. I felt as if I wanted some comfort.

Before I left Shere I had put the box all ready, placed a piece of foundation the *right way* in the sections, and had asked a neighbour to put the box on the right time.

My cousin wrote back to say that no super box was on. I could hardly believe the words, for though it was a bad season, I knew that Shere abounded in clover-fields, and my sister kept writing to me of the pounds and pounds of honey which she kept taking off her hives.

I think there must have been a fate against me that year, but until I got there and rushed to look for myself I could hardly believe that the supers were not on. I turned back the quilt and examined the hive. Oh dear, it was hard! The bees were as thick and as crowded as they could be, in splendid condition, actually wanting room. They had forced their way between the dummy board and the outside of the hive, and had built combs down between it and filled up all the space. I was obliged to remove all this, push the dummy board close up to the outside, and give them a new frame. I had rather a piece of work over it, for I had no one to help me; and it is a very great assistance both to nerve and body to have a companion who can do the smoking whilst you are at work. Then it was not an easy place to work in. The boughs of the tree above kept catching in my veil. I had no stand to rest the frames on, and I was obliged to take out one whilst I was clearing out the superfluous comb.

I leant the frame covered with bees up against the hive. In an evil moment it fell down and I had to pick it up again. This made the bees very cross, and the crosser they got the more nervous and hurried I became.

They stung me several times, but at last I got them all in order, and went away thankfully. One arm and hand were almost useless for two or three days, but to no one would I acknowledge that bee-stings were anything but a slight temporary inconvenience. Before I came away I put on the box of sections. I knew it could not really be of much good, but the weather was so lovely that I thought I might, perhaps, get so much as one little box filled, or they might at least fill some with comb, which would come in useful for the next season. It is hardly necessary to say that they did not do any work at all.

Autumn came all too fast, the super box had to be taken off, and the bees fed up before the winter. It unfortunately proved a very long, severe winter, and being away I could make no examination of those bees

until after Easter, when it was well on in April. I then got Mr. Osborne of Albury to examine them, and take them completely in charge. He said they were in splendid condition, but having just finished all their supply of honey it was now necessary to feed them up well. They had a nice supply of young brood, but the weather was very cold and scarcely any honey flowers out yet. If the bees did not have sufficient food they would draw their brood. In other words, pull them out of the cells and throw them out of the hive.

I returned to Heathbourne in better spirits, hoping to find that the foul brood was cured. I had only lost the bees of one hive, and that was quite late in the spring, and evidently from want of food. I had looked at it one day very early in the spring and found every drop of honey gone. Too impatient even to wait whilst the syrup was being made, I hastily fetched one of those precious combs of honey which Mr. Marshall had taken off the hives in August and put it into the hive. I suppose it is not the most economical way of feeding bees, but I dared not waste a moment. We fed up well, but a return of frost and snow in February was too much for a weak stock, and they died off. However, when I heard of bee-keepers losing stock after stock of their bees that winter—one in particular having lost seventeen hives—I think I was very fortunate; and it showed the good effect of Mr. Marshall's camphor, for if the disease had not been completely checked in the summer, I am sure we should have lost all our hives.

About this time I had the good fortune to hear of some clever experts in the neighbourhood. How it was that I had never before discovered 'Messrs. Bennett & Wood, Temperley Road, Balham,' I cannot imagine. It was the thing I had longed for ever since I had first started bees. Often and often had I said, 'Oh, if there was only some one near whom I could consult!' Of course I could have Mr. Marshall when I liked, but as he had to come from a distance I had to pay accordingly, and I looked upon him as a luxury to be only had on rare occasions.

Mr. Wood was a most enthusiastic bee-keeper, and in him I found a kindred spirit. He undertook the charge of Mrs. Graham's hives, which were getting rather weak for want of feeding. However, under his skilful management they soon began to improve.

In May he and Mr. Bennett drove the bees from the two straw skeps, and placed each stock in Mrs. Graham's bar-frames. A little later he added about five thousand bees to strengthen one hive which was weak. A curious incident happened in bringing these bees, and it only shows what creatures of resource bees are, and the rapid way in which they set to work.

Mr. Wood found it necessary to go to Kent to buy those bees, for had he brought them from anywhere near they would have returned to the hive from whence they had been taken.

The bees were brought up in a box on a frame of brood-comb. Of course they had no queen, as they were going to be united to a stock which was already provided with one.

They were necessarily in this box all night, and the next morning when Mr. Wood took them out to put in the hive, he found they had actually commenced starting eight queen-cells.

I now got Mr. Wood to drive my bees, as I was anxious to get rid of the old hives, and also I thought it would be as well to unite two stocks in each of my bar-frames.

The hive in which the bees had died had been all purified and repainted, and into this we put the bees of two of the hives, into the other the bees of the Chinese Pagoda and an old hive, whilst Watson got one of Mr. Bennett's bar-frame hives and his bees were put into it. In this way we got rid of all our old infected hives, which were immediately condemned to be burnt. The combs were well started with brood, but alas! there was the fatal foul brood still to be seen. Nothing like so bad as it had been in the autumn, which showed how effective Mr. Marshall's camphor had been. Indeed, I think it must have stopped it for the time, but, doubtless, the germs remained, so that when the breeding season came round it began to break forth again.

Mr. Wood was most encouraging. He had often coped with this grim enemy and destroyed it, and he gave us every hope that in a few weeks it would be entirely got rid of.

He had found Mr. Cheshire's cure an absolute success. Feed an infected colony with syrup in which phenol, as used by Mr. Cheshire, has been mixed. The following is the receipt:—

Solution No. 8	1 ounce.
Sugar syrup	1 pint.

Made in the usual way.

The bees must be well fed with this. The worst is that the bees are not at all partial to it. They will take it down on cold days and nights, when they cannot get much honey, but otherwise they prefer their food without any medicine. The only thing to be done then is to pour the syrup over the combs. The bees will clear it all up, and in this way they are compelled to take the cure.

Under this treatment there is no doubt that my bees improved, rapidly increasing in great numbers, and I had to cut out many queen-cells to prevent swarming, whilst the foul brood rapidly diminished. I cannot pronounce it entirely cured until next summer comes; if I then find any traces of it I shall try giving each hive a new queen, as recommended in the *British Bee Journal*. In the meantime, besides putting lumps of camphor as before, I have tied a bottle of carbolic acid into each hive, with a piece of wool put in for a stopper.

My Shere bees were working well under Mr. Osborne's care, though such was their desire to swarm that over thirty queen-cells were cut out by him in the course of the year.

From this hive I received some beautiful honey, several of the sections being sealed over and ready to take by the Jubilee. I need hardly say that this was the only thing necessary to make my summer a real Jubilee.

And now the summer, alas! has ended, and the bees are all safely shut up for the winter, and should I find my bees in a satisfactory condition next year I shall ask the Editor to allow me to say a few words later. I am tempted to give a description of a beautiful Observatory hive purchased from Messrs. Neighbour' but I am informed that my space is limited. I can only say that it has been of untold delight to me. It is one of those in which the bees are as safely housed as in the ordinary bar-frame hives, but with this advantage, that you can raise any frame into a glass case above the hive and watch all the movements of the bees in perfect safety. I have the hive in the house, and a passage is made through the window for the exit of the bees.

In a little book written by my sister, Lady Clay, called *Failures and Fortunes in Farming*,* she mentions once being tempted to exclaim, with Mallock, 'Is life worth living?'

To that I reply, 'Yes,' if you keep bees, and above all have an Observatory hive and take in the *British Bee Journal*.

[The compiler of the above says, 'Whatever merit these chapters may possess I owe entirely to Mr. Cowan's book, *British Bee-keepers' Guide Book*, published by Messrs. Houlston & Sons, and to *Modern Bee-keeping*, published by Messrs. Longman & Co. I do not profess to give the whole of the practical management of bees. Those who require to go thoroughly into the subject I must refer to those two books and to the *British Bee Journal*.]

* To be had from Lady Clay, Barrows Lea, Shere, Guildford, price 1s.

Correspondence.

The Editor does not hold himself responsible for the opinions expressed by his correspondents. No attention will be taken of anonymous communications, and correspondents are requested to write on one side of the paper only, and give their real names and addresses, not necessarily for publication, but as a guarantee of good faith. Illustrations should be drawn on separate pieces of paper.

Communications relating to the literary department, reports of Associations, Shows, Meetings, Echoes, Queries, Books for Review, &c., must be addressed only to 'The EDITOR of the "British Bee Journal," *c/o Messrs. Strangeways and Sons, Tower Street, Cambridge Circus, W.C.' All business communications relating to Advertisements, &c., must be addressed to* Mr. J. HUCKLE, *Kings Langley, Herts (see 2nd page of Advertisements).*

**** In order to facilitate reference, Correspondents, when speaking of any letter or query previously inserted, will oblige by mentioning the number of the letter, as well as the page on which it appears.*

SCRIPTURE TEXTS WHEREIN THE WORD HONEY OR HONEY-COMB IS MENTIONED.

[1402.] Should it be within the line of admissible matter for insertion in the *Journal* kindly find a corner for the enclosed. It may possibly interest some of your readers to see a record of the numerous passages that appear in Holy Writ where the word 'honey' or 'honey-comb' is mentioned. It might also lead them to a search to supplement those I give, or, failing that, might notice the passages given, when they could but find a great deal for thought, if only the references made to honey. The light in which it is placed before us is evidence of its value in ancient times. I have not found a price quoted for honey in my readings, but that merchants traded in honey at fairs and markets is told us in Ezekiel, chap. xxvii. Perhaps some of your correspondents can enlighten us as to the earliest money value quotations for honey: it would be very interesting.

Here I would mention I have a pleasurable recollection of a visit to a village school, and offering three prizes, first, second, and third, to the boy or girl who should give me the largest number of texts from Scripture in which the word 'honey' or 'honey-comb' is found, each text to be written out in full, the schoolmaster very kindly undertaking to be the examiner. (The work was, of course, done out of school hours.) There were twelve children who entered the field of search (ten girls and two boys); the highest number, 51, was given by a boy, three girls came close after him with 45, 45, 46, four with from 30 to 39, four with from 20 to 25. The work of two of the girls, aged ten, was of great merit. I have thought since how many of these children might probably as they grew up become bee-keepers, having had their thoughts thus directed in their childhood. They were very enthusiastic at the time.

Gen.: xliii. 11.
Exod: iii. 8, iii. 17, xiii. 5, xvi. 31, xxxiii. 3.
Lev.: ii. 11, xx. 24.
Numb.: xiii. 27, xiv. 8, xvi. 13, xvi. 14.
Deut.: vi. 3, viii. 8, xi. 9, xx. 9, xxvi. 15, xxvii. 3, xxxi. 20, xxxii. 13.
Josh: v. 6.
Judg.: xiv. 8, xiv. 9, xiv. 18.
1 Sam.: xiv. 25, xiv. 26, xiv. 27, xiv. 29, xiv. 43.
2 Sam.: xviii. 29.
1 Kings: xiv. 3.
2 Kings: xviii. 32.
Job: xx. 17.
Ps.: xix. 10, lxxxi. 16 cxix. 103.
Prov.: v. 3, xvi. 24, xxiv. 13, xxv. 16, xxv. 27.
Sol.: iv. 11, v. 1.
Isa.: vii. 15, vii. 22.
Jer.: xi. 5, xxxii. 22, xli. 8.
Ezek.: iii. 3, xvi. 13, xvi. 19, xx. 6, xx. 15, xxvii. 17.
Matt.: iii. 4.
Mark: i. 6.
Luke: xxiv. 42.
Rev.: x. 9, x. 10.

The above gives a total of fifty-nine texts. Will some of your readers supply any additional ones? I remember Mr. Carr on one occasion, when giving an address, quoting a number, but I forget his figures just now.—R. R. GODFREY.

WORKING FOR HONEY.

(*Extract of a letter to Mr. J. Walton, Weston, Leamington.*)

[1403.] I will now give you my method of working for honey, both comb and extracted. I will first point out the disadvantages of the old system of working, *i.e.*, supering old stocks for section honey—1st, the liability to swarm just as they have got to work nicely in supers, leaving a lot of half-filled sections; 2nd, the great amount of brood to take care of and feed, which at the time of our honey season is generally short and sharp; it keeps too many bees at home on household work. Every bee-keeper knows (or should know) that when honey is coming in plentifully a swarm will do wonders in a short time. The reason is this, '*it's all hands to the pump.*' No babies to feed, or next to none. Therefore all the bees can go foraging and collecting honey to bring home. All the bees in the swarm are capable of honey-gathering, or what are termed field-bees; and the sharper the honey is gathered, the better and quicker the sections are filled and finished. Also, it is a well-known fact that when a swarm has got the 'go' in them, the more honey the more wax they make, which is the proper condition we want for sections. Now, my object is to point out how to make the bees do the most in the shortest time, or, in plain words, get all that is to be got (as the Quaker says, 'Get it honestly if you can, my boy, but get it'). I should give the preference to 6-in. frames, ten frames in a hive, two stock boxes to make brood nest; but it can be worked with the Standard or any other sized frame, or skeps in conjunction with frame-hives.

Well, I shall suppose that the hives are all 6-in. frames, and the hives and section-case are all one pattern; also, that I had a piece of land suitable for arranging the apiary. I should place all the hives in clumps of threes.

I have only given a small number of hives to show how to arrange them: there should be trees for protection—it might be fruit trees, or only shrubs, according to taste. I think they are necessary as shelter and land-marks for bees. We will suppose the bees have plenty of food, either natural or good syrup, to carry them on to the middle of April, which they ought to have (I don't believe in early stimulative feeding). Some time in March, when weather is suitable, run them over, and see how they stand as regards food, queens, brood, &c. Make food, that is, give food to those requiring it, in the shape of a full comb of honey from some other hive, or a comb filled with syrup, and placed as close to the brood-nest as possible, but don't break the cluster more than you can help. But if the stocks have been well looked after in the autumn they will not want any feeding until April. Join any colony that is queenless to the next, then about the first week in April, if the weather is fine, start feeding out of doors (if you are far enough away from other people's bees), it is the best feed, by a long way, for stimulating and keeping your bees at home, and for keeping them from robbing; in fact, it keeps them out of mischief. Place a pan (a large milk-pan is best), get a lot of old ginger-beer corks to make a float, fill almost full with warm water, then sprinkle a few pounds of sugar into the water, over corks, making only sweetened water, keep the feeder going until they get enough to do without it; that you will soon see, for they won't scarcely look at it if there is honey on the 'go.' About the first week in May, or before, if the weather has been good, overhaul them again, and if the top brood box has got a lot of stores, just reverse them; place top at bottom and bottom at

top. That will make room for the queen, for the bees will soon shift the stores, and the shifting starts to rapid breeding. Well, we will presume that all the stocks are pretty near swarming point. When the honey begins to come in, go through the lot and see which are the forwardest lots. I will deal with three hives, *a*, *b*, *c*. That will show you how the whole apiary is to be worked. Well, see which of the three hives is strongest. If they have not started queen-cells, select the combs of hatching-brood and place them, ten in number, in one box. Brush all bees from the other combs on to the other combs first mentioned. This is to crowd them and make them get to swarming as quick as possible (the other combs of brood can be placed on one of the other stocks for them to look after). As soon as they have swarmed, hive them on their old stand on full sheets of foundation, if you have not got some good clean combs to spare: if so, use them. We want all the wax-building done in supers. Well, if placed on old combs, I should super at once; they will start straight away if honey is coming in fast, and neither of the other two hives have swarmed. Well, about ten o'clock a.m., when they are well in the field at work gathering honey (*a*, *b*, *c*,) take *a* and *c* clean away to a new station, the farthest point from where they have been standing. All the field-bees coming home will go to their old station, and finding only one hive in the place of three they will all go into that. The swarm will welcome the strangers if filled with honey (and it should only be done when honey is coming in), then pile on section-cases as fast as you can. There will be at least twelve to fifteen lbs. of bees in the one lot, swarming impulse is satisfied, and they go to work with a will; it is a treat to see them at it. Keep them on one set of combs, that will send all the bees into the supers. This method is simply to wear out all the old bees in honey-gathering and wax-building. Keep putting on cases as fast as the bees fill them. When you have six cases of sections filled then you can start taking the bottom lots; keep working from the bottom, they fill and seal better than raising the supers. Always take off whole cases at the time. By using carbolic cloth (or house flannel is best) you can drive them out of sections as fast as you like; I like three pieces of flannel, and with a little smoke you can make sharp work of it.

I will now explain what to do with the brood and bees the swarm *b* came from. That being the best lot and earliest, that is what you want for queen-raising. By having a few hives made with three entrances, or better still, a floor-board with three entrances cut into it, you can divide the brood and bees, giving queen-cells to each nucleus lot. One hive, by using two light division-boards, makes three small lots to raise three young queens in. I should raise enough young queens so as to give each stock one, after the honey season is over, for they are the foundation of successful bee-keeping.

Now, we will treat the other two lots, which have had all the field, or flying bees, taken away, as before explained. They are to be placed in a new station. In a few days there will have been enough young bees hatched out to make them up to honey-gathering strength. Now place sets of empty combs on top of the two sets of brood combs, using excluding honey boards (in both comb and extracted), place brood combs 1 5-16 from centre to centre, and the sets of empty combs 2 in. from centre to centre; the former keeps the brood chambers for brood and the honey chambers for honey. Thick combs are best to shave off for extracting. You will no doubt see by my method that I practise swarming without increase (unless increase is desired), then build up from nucleus lots by giving empty combs or foundation, but I am supposing I have stock enough, and don't want to increase. By placing one nucleus against every clump of three hives they can be easily joined when the honey season is over, so as to get the young queens on good lay through August and September, which mean strong hives for winter and success in bee-keeping.

P.S.—I should clip all queens after they have been fertilised to prevent swarms from straying away. You might try what course you like and they will swarm, if you super with sections and the queens are over a year old. I have only to refer you to the Stewarton method of joining swarms to prove to you what can be done by joining swarms together, only with my plan you only want one out of every three to swarm and the job is done. Of course, if two or more hives swarmed at the same time from the same clump, you have only to join swarms, giving the old queens to *a* and *c*, which you intend to run for extracting.—WALTER MARSHALL.

'A. E.' WANTS A DIPLOMA.

[1404.] When I read letter 1384 on p. 548, I confess to having experienced such a touch of sadness as seldom overtakes me. No wonder 'A. E.' finds the wool getting thin on the top of his head, where the wool ought to be. Although my wool is still thick (and for the matter of that, I am much afraid my head is also, for I, too, like 'A. E.,' despised 'handles') I find my name would look much better with more or less of the alphabet as a conclusion to the whole matter. That is, of course, for gulling the public.

Now, it so happens, Mr. Editor, that I have taken my first-class certificate, and it has become a matter of surprise to me that 'A. E.' has never had one conferred on him *honoris causâ*. This might be a step towards restoring the prestige of our disconsolate friend. Can we not get the prefix 'Royal' to our B.B.K.A.? Then, of course we should at once all become Fellows, and if an announcement that a lecture would be delivered by Antonio Demosthenes Blank, Esq., F.R.B.B.K.A., did not draw the public nothing would.

By the bye, why, oh, why, does 'A. E.' never 'jot' now? He used to do it well and often. Is it the want of these same letters he longs for? Let him remember that in our *B. B. J.* he is among friends who admire him for his worth, and not for any title, and that we like him to sling ink, even if we do occasionally get a splash. —F. C. E. B. B. K. A.

FOUNDATION *v.* WORKED COMBS.

[1405.] Yes, Mr. John Edey, it is my opinion that for all practical purposes a sheet of foundation is superior to a comb, and it is not so easy to refute as may at first sight appear to you. And it seems to me incredible that a stock could be found in April in need of extension of brood-nests, as here, at least, our stocks do not reach the lowest point till the first week of May. And we consider them good if they can *fill* four frames of brood at that time, and before they can fill the seven or eight they have or should have been wintered on, it is at least the last week of May; and it is not advisable to extend the brood-nest until these are packed with brood, and bees lying behind the dummies. Now, Mr. Edey, when you have got a hive in this position, I will tell you how to use a sheet of foundation to make it superior to any comb. Place it in the centre, and the two combs next it close up to it for forty-eight hours; at the end of that time open out to a quarter of an inch, and you will find an egg in almost every cell. Giving sealed or partially uncapped stores is no facility with me, as I pour the syrup into the tops of combs, and save the bees the trouble.

Mr. Edey asks if ever I have tried tiering hives filled with *clean* comb. I ask, in reply, if he thought I was

writing from theory, and would refer him to J. H. Howard's reply to query No. 2, and would add that common sense would say that he would do better with full sheets all over. Again, he says, 'It is important that the combs be *clean;*' and as those who reply to query No. 2 advise the combs to be wrought in the brood-nest I would ask how they are to be got clean and free from pollen?

Mr. Edey, in his last paragraph, accuses me of writing strongly and somewhat uncourteously, but I am afraid business interest has somewhat sharpened his susceptibility. He asks if I have 'studied this wiring business.' I reply that I have to the extent of buying some wire and never using it, nor never shall while I can get foundation that does not need it, and can extract from it without breaking a single comb: and when a man spends his money for what is no advantage to him my term for it is *waste*. But as many will continue to use not only clean but old pollen-clogged combs, I believe it would be a blessing to them if Mr. Edey could show how there need be no danger from them spreading foul brood. —James Saddler, *Forfar.*

PRICE OF HONEY.

[1406.] I should not trespass on your space again with this subject but for the fact that 'Sherborne' has asked me two or three questions in his letter of the 8th inst. He asks what I would do if placed in circumstances similar to himself. If he will take the trouble to read carefully the recent *Journals* in which articles have appeared from the pens of 'Useful Hints,' Mr. R. R. Godfrey, and others, I think he will find a way out of the difficulty he mentions. In one place Mr. Godfrey says he has seen honey vendors standing side by side in the markets, and 'those who sold the most were those who charged the most,' simply because of the difference in the 'get-up' of their 'sales.' Mr. 'Useful Hints,' and also Mr. Simmins, say, 'It is a great mistake to *rush* honey on the market all at once.' Mr. Simmins further says, 'Our supply is not equal to our demand.'

Now, what are we to infer from these various 'hints?' Only that the price I quoted may be obtained if things are managed in the right way. I suppose every county has its quantity of cottagers who have honey for sale at low prices; but surely 'Sherborne' will not place honey from the sulphur-pit alongside *pure honey from the extractor!* With what little experience I have of bee-keeping—and that is very limited—I have learnt that prices are on the down-grade. But why should it be so? When the comparison between honey and butter, both as to quality and expense, is properly considered, my opinion is that it is not so much that honey should 'go down' as that the education of the parents of families should 'go up.'

Let the B. B. K. A. publish in leaflet form articles on 'Honey, and its qualities, *dietary* and *medicinally*.' Then have these scattered freely by bee-keepers all over the country, and I think we should have less complaining about the difficulty of selling.

While on this subject kindly allow me to say that it appears to me a strange anomaly that many of our great masters are trying to increase bee-keepers in this country, and yet advocating the 'down-grade' in the price of honey. They *may* be able to profitably produce it at a low price, owing to long and varied experience, and knowing so well how to obtain the best possible results from each hive; but how about us who have not this experience? Are we to lose every year by it, simply because the larger producers can afford to sell against us? If bee-keeping is to spread as it ought then we must hold out all the inducement possible to our neighbours, and *all* charge a reasonable price for the produce. Besides, is it not possible, and also probable, that if prices go down then adulteration by too much feeding follows as a result?—Charles Howes.

Queries and Replies.

1. *Robbers, how known.*—Where bees are of the same race, how is it known when robbing is going on? If Ligurians are seen entering a black hive, or *vice versâ*, it is plain they are entering other people's premises. But among, *e.g.* Ligurians, entering a Ligurian hive, how can we know that some of them belong to another hive of Ligurians?—[*A.* When the robbers are of the same race as the colony attacked, the fact that robbing is being carried on may be easily ascertained by the commotion at the entrance, where a series of single combats will be in progress. The attacking bees may be known by their actions—a suspicious, wary hovering in front of the hive, and a sudden dash at the entrance when a chance is given. Where the plundered hive is queenless, generally no resistance is offered, and often the queenless bees will join the plunderers in carrying off their own sweets, and, deserting their hive, will unite with the robbers.]

2. *Renewal of Robbing in Spring.*—If a particular hive has been persistently robbed in the autumn, the robbing only ceasing on all the bees retiring to their winter quarters, is it certain, or likely, that some months after, when they all come again in spring, the robbing bees will have forgotten the assailed hive and leave it in peace? Or would it be wise during the winter to change its place, so as to 'throw them off the scent?' And if this latter precaution were taken, the hive moved, say a perch or two, can we rely on these bees themselves, those moved having so far forgotten as not to be puzzled and lost by the change of place? This last query, indeed, is much more general, and one I have often wished to put: because, from various other causes, one often finds it expedient to change the place of a hive when it cannot well be done gradually—two feet at a time—in the orthodox way. Can it safely be done at a jump during the winter rest?—[*A.* It is not likely that bees which have attacked one particular hive in the autumn will renew the attack in spring. At this season you may safely remove the hive to the distance of a perch or two, if carefully done during cold weather, when the bees are not flying.]

3. *Combs.*—Is there any rule among experts as to the number of years combs may be used before they become too contracted for breeding, or otherwise unfit? Would four years be too much?—[*A.* We have used combs in the same hive for fifteen years, and bees have prospered upon them. The old useless pollen and cocoons were removed, as occasion required, broken cells were repaired, or rebuilt, and all other necessary operations were performed. This took place in a 'Grecian hive,' and was tried for the sake of experiment, a prolific queen being always kept at the head of the colony. As a general rule, however, it is better to remove combs five or six years old, especially when very dark, heavy, and clogged with pollen, and to supply their places with foundation.]

4. Two years ago I laid in a very large stock of foundation, both ordinary and 'super:' which is not nearly all used up yet. Can it still be made available by dipping in hot water? And if so, could you give any directions in detail; that is, as to the heat of the water or the length of time to leave the combs in it?—[*A.* Before inserting the foundation in the frames apply heat to the whole sheets—about 90° Fahr.—by placing it near a fire, on the plate-rack over a kitchen-range is a suitable place, for a short time, until it becomes sufficiently pliable to manipulate. Then cut into proper sizes for frames or sections, and insert them in the frames, in a warm room. This operation may be performed now, or at any time before the frames, &c., are required for use. Before placing frames of foundation, so filled, in the hives, or putting swarms upon them, plunge them into hot water, of no higher temperature than 100° Fahr., for a few seconds, and when sufficiently limp, they are fit

for immediate use, and will be drawn out as quickly and as perfectly, by the bees, as new foundation.]

5. *Drone Comb and Drone Foundation.*—Mr. Cowan in speaking of rearing selected drones (p. 89) says, 'Introduce drone comb into the centre of the brood nest.' But *is* drone-comb manufactured, except thin, for supers? I have never met with it, nor seen it advertised.—[*A.* No, drone *comb* is not manufactured, but we believe drone *foundation* is. You confuse the terms, 'comb' and 'foundation.' Mr. Cowan's advice is to insert drone *comb* not *foundation*. Of the former he supposes all bee-keepers to have a stock in hand, kept over from previous years.]

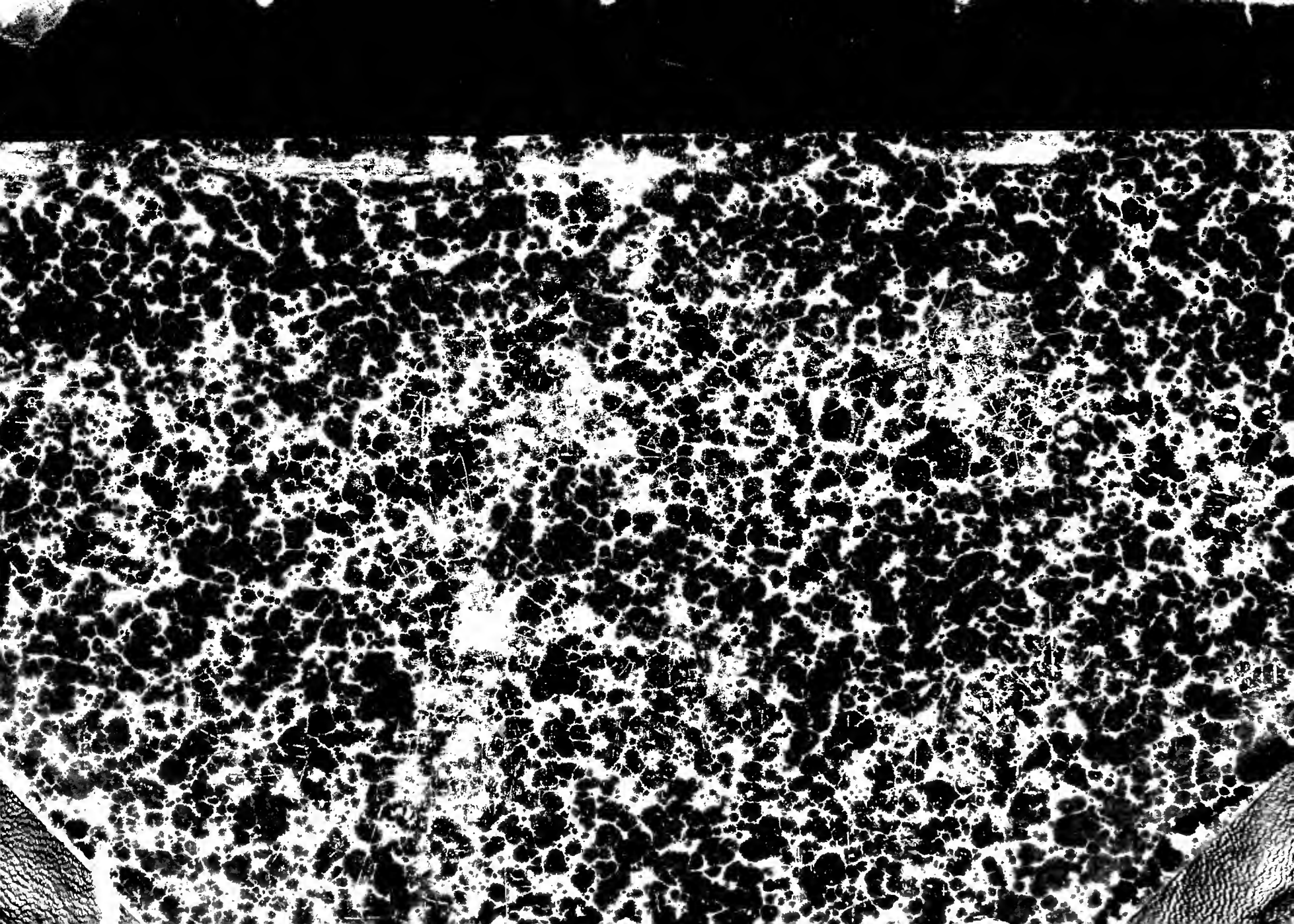
6. *Artificial Swarming.*—Under 'Artificial Swarming' Mr. Cowan mentions a method recommended as very simple and easy; but which seems to be open to a fatal objection in practice. It is in making three colonies out of two. The brood without bees of hive A is put in a hive where B stood, while B itself is moved farther on. Thus, the old bees of B, returning to their original place, are supposed to nurse the brood of A and raise a queen. Now while the bees of B are gathering back from fields &c., to their old locality, many hours must elapse before they are collected in any numbers; and meantime the brood is left untended. Would it not most likely be chilled and perish?—[*A.* We certainly see no 'fatal objection in practice' to Mr. Cowan's directions for making three colonies from two, given under the heading 'Artificial Swarming.' He gives very particular directions that this method is only to be practised on a 'fine day when most of the bees are flying' and when colonies are ready for swarming, which suppose warm, and at times sultry weather. At such times there is no fear of chilling brood; indeed the excitement of the returning bees, on finding their queen gone and their combs changed, will raise the hive to a higher temperature than the brood experienced before being transferred; and in two or three hours the bees will settle down quietly, and form queen-cells, unless a fertilised queen be caged on a brood comb, which is by far the better plan and in that case she will probably be well received after twelve hours confinement. We have pursued this plan in hundreds of instances and never knew it fail when properly carried out with *strong colonies.*]

7. *Releasing Queen at Sunset.*—In a number of the *B. B. J.*, and in many other places, I have seen it recommended as one of the essential points in safe introducing, to release the queen very late, just when it is getting too dark to work with the bees. Now in the case of the pipe-cover cage, does not this do away with the very advantage supposed to be gained? For we are told often that the great point in this form is that you can see how the queen is received; and if the bees attempt to ball her she can be rescued and caged for another day. Do the advocates of the very late releasing contemplate leaving her to take her chance?—[*A.* There can be no possible reason why a queen should not be released from a pipe-cover, or any other cage, late in the evening. Since no one can manipulate bees in the dark, there must be time for performing the operation by daylight. Five minutes, at most, are required. The essential points are to *notice* the animus of the bees towards the queen, both *before* and *after* releasing her. If they are encasing—vulgarly called *balling*—the cage, showing every disposition to use their stings, and uttering a shrill, hissing sound, while clinging so closely to the cage that it is almost impossible to dislodge them, then we say, *don't* release her, either at *night* or *morning*, but close the hive and leave it for another twelve hours. If, on the other hand, the bees appear kindly disposed towards the queen, feeding her through the wires of the cage, and carrying on the work of the hive with that pleasing, well-known, contented hum; then, whether it be night or morning, release the queen, carefully noticing how the bees receive her. If she is allowed to perambulate the comb, accepting food when offered, and all goes on quietly and harmoniously, close the hive gently and carefully, and the introduction is safely accomplished. Forty-eight hours afterwards you may verify the insertion by 'interviewing' the queen, *if* there are no robber-bees about, but do not keep the hive open long, and be careful to close it *quietly*, after a careful, gentle manipulation. For our own part we introduce at all hours during daylight—and sometimes by lamplight—and we do not lose three queens out of a hundred. Indeed there is no reason why a single queen should ever be lost when using the pipe-cover cage. The great mistake made by beginners is that they release the queen *before* the bees have accepted her, when, on closing the hive, she is encased by the enraged and excited bees, and, in nine cases out of ten, is crushed to death, or maimed for life, in their cruel (?) or loving (?) embrace.]

8. *Queen-cage.*—A very distinguished foreign expert who, happening to be writing, recommended strongly this *very* late releasing, also described to me an improved pipe cover-cage, to be made with wire gauze. Not having much leisure for this kind of work I should like to have it carried out by 'skilled labour.' Could you tell me the address of any one who *makes* such cages, to whom I could apply? as the dealers I presume only sell them?—[*A.* The wire gauze cage has no advantage over the finely-wrought cage of thin wire. Indeed the latter has an advantage from the freer communication afforded between the bees and the queen, both for feeding and fraternising (sororising?)]

Ants and Bees in Jamaica.—The biting ants, which march in compact column a few inches wide and many yards long, do not do much injury, unless you deliberately stand in the middle of them and wait for them to crawl up. They marched through the house one night, and turned me out of bed at midnight. I was bitten, perhaps, in a dozen places, but the bites were very trifling. The bees are more troublesome. The natives hollow out logs for them, or utilise the empty packing-cases left by passing caravans, which they place in the upper branches of the taller trees. These you see perched up in the trees all about, each with its swarm of bees. When the honey season comes, the boxes are lowered at night into a fire of dry grass, the bees destroyed, and the honey taken. Occasionally the bees seem to get very angry, and buzz furiously around their houses, descending on any bird, animal, or man that happens to pass beneath at the time. Baxter keeps a swarm in the loft here. Once when they were angry they came down and killed a tame eagle which he kept; another time they killed a small monkey which I had bought as entomological attendant for my dogs. Rats are a nuisance; they swarm everywhere. They and the white ants between them give a housekeeper an anxious time of it. One day I went up to the store-room to get a pot of honey. Two rats had eaten through the cover, and then gone in after the honey. They had got so sticky that they could not jump out, and there they had apparently remained for some days. I should think they must have been very thirsty.—*The Church Missionary Gleaner.*

Business Directory.

HIVES AND OTHER APPLIANCES.

Abbott Bros., Southall, and Merchants' Quay, Dublin.
Appleton, H. M., 256A Hotwell Road, Bristol.
Baker, W. B., Muskham, Newark.
Baldwin, S. J., Bromley, Kent.
Blow, T. B., Welwyn, Herts.
British Bee-keepers' Stores, 6 George Yard, Fenchurch St.
Burtt, E. J., Stroud Road, Gloucester.
Edey & Son, St. Neots.